



FRIDAY, OCTOBER 17, 1879.

Contributions.

Notes on Track—The Lake Shore from Buffalo to Detroit, and the Atlantic & Great Western near Cleveland.

TO THE EDITOR OF THE RAILROAD GAZETTE:

One of the first things that attracts the attention on leaving Buffalo by the Lake Shore & Michigan Southern road, is the remarkable steadiness of the train and excellent condition of the track. The next is the cleanliness of the right of way. A few years ago the best roads in the country allowed the brush, grass, weeds and brambles to grow up all over the right of way and often to encroach upon the track. A ride of a hundred miles or more became monotonous because the landscape was shut out on either side by a heavy growth of brush and saplings. This has changed on the better class of roads and one can get a view of the country he rides through. This not only serves to draw pleasure travel, but is a matter of economy as well. Dried brush and dead leaves and grass only need a spark from a locomotive or a cigar thrown from a car window to make them first-class agents of destruction. Of course it makes the premises look clean after the flames have licked up everything, even to the last blade of grass. But then, some miles of fence are gone, some buildings have vanished, and mayhap some bridges likewise. Our live roads now cut all grass and weeds and brush in midsummer every year, and as soon as it is dry, it is raked clean and burned. It is unnecessary to detail all the advantages arising from this practice, as any one who will give the matter a little thought will see readily that it is a matter of great importance, and should receive earnest attention. Doubtless there are those who will argue that none but rich companies can afford to clean up their premises in this manner. Horace Greeley said in an address at an agricultural fair, that "if a man were rich, he might possibly afford to do some slovenly farming, but a poor man could not." The poorer a railroad company is, the greater the necessity of its keeping its ground clear of trash.

The next thing that attracts the eye of the Lake Shore traveler is the superb masonry. Not only the excellent quality of the material and workmanship, but the ample dimensions are noticeable. There seems to be ample water space, and the masonry extends far through the embankments with high copings. This not only gives the work a tasteful and solid appearance, but it serves to prevent, in a great measure, the wash of the embankment. And it frequently happens that waste material from cuttings must be dumped on these embankments, and if the masonry is not of proper dimensions this waste finds its way into the bed of the stream and chokes the current. Another feature of this road is the comparatively small number of open bridges. No trestles or open bridges are seen where it is possible or at least advisable to build masonry and embankments. The substructures and superstructures on this road are first-class. Much taste is also displayed at the station grounds along the line. Well-kept gardens and flower-beds make the road an attractive one, and, judging from the enormous passenger traffic the road is enjoying, the traveling public appreciate the efforts made by this company to make the traveler happy.

The Atlantic & Great Western at Cleveland has completed a new freight house and office. The freight room is 40x300 ft., the office building 40x45 ft. and three stories high. The structure is of brick, and roofed with slate. This road has also another freight house and office at Youngstown, O., just completed. This is also of brick, with slate roof. The structure is 30x160 ft. The road-masters on this line are preparing their track for their annual inspection, which takes place in November next. This road is operating 551.43 miles of main line and 155.36 miles of sidings or double track, making a total of 706.79 miles. The road pays a premium for the best sub-division of 50 miles or thereabout of which a road-master has charge. A premium is paid for the best sub-division, the best section, and the best mile on a sub-division. Mr. Collopy is Road-Master from Cleveland to Leavittsburg, 50 miles. The writer had an opportunity, a few days since, of giving this sub-division a close inspection, which elicited the following facts:

To begin with Cleveland yard, it is difficult to see in what respect it could be improved. The main line is put up with a level, and the tangents are as smooth as a marble slab. The curves are carefully elevated by a rule adopted by Mr. Latimer, the Chief Engineer, who has probably given this subject as much attention as any engineer on this continent. Some portions of this road are a constant succession of reversed curves, and the large traffic rendered it necessary that the elevation of curves should be as near perfect as possible, and it seems that that degree of excellence has been reached here. One thing that may be considered remarkable was the absence of a single loose joint, either in the yard or on the main line. The joint adopted here is the suspension joint with angle splice-bars. The ordinary bolt is used with a wooden washer. These washers are a strip of hard wood 9 in. in length, by about 1/4 in. thick, and 1 1/4 in. wide. The bolts are five inches from centre to centre, and this strip is bored to correspond, so that one washer accommodates two bolts. A thin steel plate of the same length and width as the wooden washer is punched so as to form a supplementary washer. It is obvious

that these washers cannot turn. And the elasticity of the wooden washer keeps the nut from turning or jarring loose. The thin plate of steel interposed between the nut and wooden washer becomes indented or imbedded into the wood, forming a recess for the nut, the corners of which being indented in the steel, the nut is perfectly locked. I believe there is no patent on this device, although on this point I am not certain. But I am certain that this is the best joint-fastening I ever saw. Another thing worthy of special mention on this 50 miles is the true slopes in cuttings, and the cleanliness of the ditches. This, together with the scrupulous cleanliness of the right of way, gives evidence of the unremitting care and attention this road receives from every one concerned, from the Chief Engineer to the track-watch. I am told, on good authority, that other portions of this road are equally as well cared for as Mr. Collopy's division, and knowing something of the men in charge I have no doubt but there is some good track on other divisions as I have been describing. I only describe what I have seen, and expect soon to have an opportunity of seeing more.

I would here urge the importance of all railroad companies paying premiums to track-men. If any one entertains any doubts of the wisdom of the plan, let him visit the roads that are practicing it and his doubts will be dispelled at once.

WM. S. HUNTINGTON.

Cheap Railroads, Cheap Canals and Cheap Engineering.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Your recent comments on the system of employing incompetent men because they are cheap to construct cheap railroads will meet the approval of experienced engineers throughout the country. You think, however, that some civil engineer of experience might formulate the general laws which should govern the location of cheap railroads.

"Of 80,000 miles of railroad in this country, there are more than one hundred widely different and distinct combinations of circumstances which must be considered in deciding what is best to do in expending a given amount of money to furnish a certain amount of transportation facilities between given points. The natural causes that interfere in these calculations are numerous, and some of them are: mountains, streams, floods, snow, ice, swamps, tunnels, cost of fuel, timber, iron, distance from manufacturing establishments, grades, curves, kind of freight to move both ways—whether all one way or not—local business, through business, competing lines and various other causes. The most important points to determine, in building a railroad for a given business, either passenger or freight, or mixed traffic, are: how many tons per wheel will you carry, and what must be your highest speed in order to get the trade you seek and make a paying business? The weight per wheel, the speed and the size of the car wheel, all must be taken into calculation."

Having the above data, the weight of iron, size and number of ties per mile can be approximated. The admissible grades and curves with the warrantable expenditure per mile on grading, bridging, stations, turnouts, culverts, snow fences, etc., etc., make an aggregate of a large amount of labor required to give the necessary information to "the projectors of such lines." It is already embodied in your article and well condensed: "In building a cheap road then, the first thing to do is to secure a thoroughly qualified engineer to locate it."

Florida is now having an epidemic of cheap canals; last winter there was a perfect "epizootic" of cheap railroads.

The serious thing about the canal matter is that they have such a multiplicity of proposed routes, that there are not sufficient harbors on the coast for the terminal points, and the neighboring state of Georgia will have to be taken in.

Canals are getting so cheap that one company proposes to construct a ship canal 155 miles long across the state for \$30,000,000. It is proposed to get the Governor to call a special session of the Legislature, at an expense of \$15,000, to grant a special charter, but it is not probable that \$500 has been spent on surveys.

If the engineering ability of the country is to become the football of designing schemers, let not the *Gazette* advocate a free engineering school for the benefit of adventurous politicians or financial agents of those who would only profit by the study of years and hard-earned experience in a profession that has done so much to make our country so noted for bold, energetic and successful enterprises, and exhibitions of engineering skill that compare with anything accomplished by those of other nations. Any enterprise that is not of sufficient importance to require the services of competent engineers from the start, should hardly be worthy of government assistance or public support.

ENGINEER.

Tail Signal Made Visible to Engineman of Same Train.

CHICAGO, Oct. 12, 1879.

TO THE EDITOR OF THE RAILROAD GAZETTE:

The account in the morning papers of the breaking apart of a passenger train on the Chicago & Alton Railroad calls to mind an improvement the writer saw the other evening at the Union Depot at St. Louis. The writer was waiting for the "Vandalia" to go, and in strolling along the length of its magnificently-equipped train, noticed on the rear sleeper a red light, held by a simple device in the shape of a bracket, which is inexpensive, and within the reach of any railroad company; that, in connection with the reflector we have seen on many locomotive cabs, would enable the engineman to have the red light in plain view all the time, without having his attention diverted from ahead, so when the engineman and fireman miss the red light they know that there is something wrong, and they must follow such

*The quotation is original with the writer.

instructions or rules as all of our roads have given. If the account is a correct one, it is evident the signal cord was "fouled" by the fuel in the tender or by baggage and express freight in cars, which is frequently the case. I am sure Mr. Simpson or Mr. Peddle, of the Vandalia, would furnish any railroad manager with a description of the device, as the adoption of it shows that it is a progressive road, and they have the interest of stockholders and passengers in view.

TRAVELER.

The Road-Masters' Convention—A Correction.

TO THE EDITOR OF THE RAILROAD GAZETTE:

The report in last week's *Gazette* on the life of ties says that Mr. Collopy said, that white hemlock ties would last from five to ten years. Now, I did not give my opinion on the tie question and consequently said nothing of the kind. But there was a well-known railroad man at the meeting and he said that a white hemlock tie would last from five to ten years, and he ought to get full credit for the information. If I gave my opinion on the life of a hemlock tie, I would say about three years.

P. COLLOPY,

Road-Master, Atlantic & Great Western Railroad.

INTERNATIONAL ROAD-MASTERS' ASSOCIATION.

First Annual Convention.

(Continued from page 536.)

SECOND DAY'S PROCEEDINGS.

The Convention was called to order at half past nine, a. m., Thursday, Sept. 11, 1879.

THE PRESIDENT.—If the gentlemen present will come to order, we will proceed to business. It has been suggested by some that we had better limit the speeches to two minutes, and as the question regarding ties was not fully settled last night, I will call on Mr. Wilson.

MR. WILSON.—I am not a member of this Association, but if I have any information to give, I shall be very glad to give it.

For the past few years I have had nothing to do with the question of ties more than to purchase large quantities, and I have done that all over the country. If there are any particular points you will ask questions about, I will answer.

MR. LATIMER.—In reference to creosoting timber, can you give us some light upon that?

MR. WILSON.—Yes. I was a member of a commission appointed by the English Government to inspect creosoted timbers, and I found ties in use 14 years as good as when put in. I found piles at Portsmouth that had been in the water 42 years, and they were as perfect below the water line as they were above; and in comparison to those not creosoted, used in the same place, they had outlived some 16 or 17 sets of piles driven around them from the same timber, cut in the same district, so that the question of creosoting made such a favorable impression on my mind that I did not care to investigate the other processes.

There are parties in this country now creosoting to a considerable extent. Mr. McCrea, Superintendent of the New York Division of the Pennsylvania Railroad, is now creosoting largely for the piles and timbers to put in at the foot of Cortlandt street. The Baltic fir is used in England largely. They use no ties less than nine feet, and nine feet six inches; that is the standard, I think, now. They use the ties five inches thick and eight inches face—very much our practice here; but in consequence of the timber being creosoted they make them thinner; they bring them double, in blocks, and saw them in two after arrival in England.

MR. FULLER.—Will it pay to creosote a white oak tie?

MR. WILSON.—I have never seen white oak ties in the ground long enough to determine. I have seen a cedar tie which I took to London, for which I had the affidavit of the President, and manager, and road men on the road all that time, to the effect that they had two miles of track laid with cedar ties and not one had ever been taken out during 22 years, and they were all good. Mr. Latimer no doubt saw some of the same ties—Mr. Enroose's road?

MR. LATIMER.—Yes, I saw them, I think.

MR. WILSON.—That was North Carolina cedar.

MR. WISWELL.—Will a tie last any longer under the rail by being creosoted than otherwise?

MR. WILSON.—A tie of soft wood timber I should judge would.

MR. PRESTON.—I feel a good deal of interest in regard to the subject of ties. I buy about 100,000 a year, and it seems to me that we can save much if corporations can arrive at some plan to cut this timber at certain seasons of the year. Mr. Latimer spoke yesterday of economy, and I think that would be a matter of economy. If we could have our contracts all made to cut in September to December, I think that would be a great economy.

MR. WILSON.—Another word in reference to the cutting of timber. From 1849 to 1855 I had a large amount of timber of various kinds cut in Michigan, a good many millions of feet every year, and gave some attention to the question of the seasons for cutting, and in that I can very fully endorse what Mr. Kennedy said last night in reference to a late fall or early winter cutting in preference to a late winter. Much of the sap of the timber if cut after January is very likely to rot early, whereas if cut late in the fall it becomes hard and dry, except in some classes of timber where insects will get into it.

MR. KENNEDY.—I would ask Mr. Wilson whether he knows in the creosoting process, whether the question of season for cutting would make any difference?

MR. WILSON.—I have had no experience or knowledge of the time of cutting this timber that has been creosoted. It has been in use very many years I know. It would be a very proper subject for experiment.

MR. HARDY.—There is one word which might be added here: I have talked with Mr. Andrews a good deal and know of this creosoting process, and regarding the sap the first process is to extract all the sap out of the wood; the wood is suddenly dried, and the sap is thrown out by the pail full.

MR. WILSON.—In mentioning the matter of sap I hope the members will understand that by that I mean the outer part, I do not mean the juices of wood which Mr. Hardy refers to.

MR. HARDY.—Regarding creosoting, there is one matter to be considered, there is more danger from fire.

MR. WILSON.—The character of the process is such that the fire is smoldered, putting a hot iron on the tie, while it would blaze an instant, it would go out if the air was only on one surface.

MR. HARDY.—It would not be recommended, then, for bridges?

MR. WILSON.—Hardly.

MR. FULLER.—In the Burnettizing process it is almost impossible to burn it. There is another process, lately patented, and I think works are being put up in the state of Delaware

to compress the fibre of all the coarse-grained kinds of wood, making them like black walnut, ash and the harder woods. I think some ties have been tried in that way.

Mr. WILSON.—That brings to my mind another matter of ties I have seen, although without any permanent results, because the time has not been sufficiently long; that is, wood-pulp and paper-pulp ties. The ties are expensive, but will, no doubt—especially in Europe—become a valuable article. Under this system of preparation, invented by an Austrian, the tie becomes impervious to water, very elastic and very durable. I have seen it in and out of water, and subject to fire. I saw it over a fire, under pressure of blast for eighteen days, placed within six inches of this blast, and it only charred it about a quarter of an inch.

Mr. HARDY referred to bridge ties. That would make it a valuable matter for consideration, as well for bridge ties as any other. It is not in use here yet. I think the London & Great Western road, Samuel Moon, Superintendent, put in some five years ago, but I do not know with what result.

Mr. ALSOP.—While this question of ties is up, I would ask what is the opinion as regards the ends of ties, whether they should be cut off square or not?

Mr. SULLIVAN.—I have been working on that for five years to get them square, to saw them off at the end. Our ties are 8½ feet long, and I cannot say whether they will last any longer by chopping them off with an axe, or sawing them off square.

Mr. ADAMSON.—Our specification calls for "oak ties;" it is immaterial whether sawed or chopped off.

Mr. BADGER.—The best material, in my judgment, is chestnut. The time of cutting, I think, should be any time after August, and from that to December. As regards the life of ties, chestnut generally wears out before it rots.

Mr. FULLER.—Is not your judgment influenced somewhat from the fact that oak ties are not convenient?

Mr. BADGER.—Chestnut is harder than oak on the roads I am on. They will last from eight to twelve years, some grades will last longer than others. The size of tie we use is from seven inch-face to nine inch-face, eight feet long. I think a sawed tie will last as long as a hewed one. I calculate that a seasoned tie, peeled, will last longer than one not seasoned and peeled; as a general thing I would rather they would be peeled because the bark will come off in a short time.

Mr. WILSON.—I had another instance in my experience of a new element in preservatives. I placed a large tank in connection with my stables and the drainage from the stables filled the tank, and I found after some months, I had some green red-beech timber—which will decay in a very few months—put in side by side, about ten inches thick, in the bottom of the tank, some 20 or 30 pieces; in about two years I broke up the tank and put them under a side track near the stable and used them for ties. Ten or eleven years after they were as solid as iron.

THE PRESIDENT.—We have present Mr. William S. Huntington, I should like to hear from him.

Mr. HUNTINGTON.—The matter of cross ties has been discussed by Mr. E. H. Barney more than any other man on this continent. He proposes to plant the catalpa tree and says they will last from 50 to 100 years, and gives instances. It may be that the matter is a little mixed. He says there is only about three fourths of an inch of sap which rots away, and the balance never decays. The trees are rapid growers, and he proposes to furnish every man a pamphlet giving a description of the tree, how to plant it, how it grows, the size of the tie desired, and I presume he would be glad to furnish you all with a pamphlet.

Mr. LATIMER.—And throw in some seed?

Mr. HUNTINGTON.—Yes, that is my idea, for road-masters say we take away 7,000,000 acres of timber every year; we will be short of timber after a while. Perhaps it would be better to plant timber and raise ties. Every road-master should examine this matter and look ahead for plenty of timber.

Mr. WISWELL.—In the materials we have, Mr. Huntington, which are the best being used now, of those that are available?

Mr. HUNTINGTON.—I should think white oak was the best. The summer I judge is the best time of year for cutting. My reasons are, the sap is then in the timber and sap is a preservative, it is oily.

Mr. ALSOP.—You think timber will last longer with the sap in it than out. Do you?

Mr. HUNTINGTON.—Yes, sir, any time when the sap is up.

Mr. LATIMER.—That is contrary to our judgment I think here, that is a new idea; I think that it may be a mistake. We have concluded the time when the sap was down was the best; that was my experience.

Mr. HUNTINGTON.—Well, there are various opinions about that. Mr. Latimer, also in regard to which is the most durable timber: white oak, black oak, or chestnut. I believe white oak is good. I should recommend white hemlock as being the most durable timber, the best in the world. I have had ties that lasted 11 years, of white hemlock; they wore out, they didn't rot out. Tamarack wears out, too. Oak ties rot out.

THE PRESIDENT.—I would say that I have had some experience in hemlock. A few years ago I bought quite a number of thousand, the Eastern hemlock, and I must confess it is very different from the hemlock that Mr. Huntington speaks of. Those I used would not last on an average over four years; that is my Eastern hemlock.

Mr. WHITNEY.—I have had a little experience with hemlock ties; in less than five years I have found that they could be shoveled right out and you could pick the spikes out with your fingers. I never heard the argument advanced before that timber was better with the sap in than out.

Mr. HUNTINGTON.—My idea is this; the sap in some wood is oily and preserving; then there are other timbers where the sap is not a preservative.

Mr. LATIMER.—I do not think it is so in oak; yet I never heard regarding hemlock, it would be something new to me, and something I never heard of before.

Mr. HARRIS.—The life of timber is about seven or eight years saying nothing about wear. Eastern timber will last longer than Western timber. I commenced my railroading in the Eastern country. Take a cold climate and the timber don't grow so fast, the grain is finer, and will last longer than where it grows faster.

THE PRESIDENT.—I cannot make a hemlock tie last more than four or five years at the outside.

Mr. SULLIVAN.—The life of a tie depends largely upon the nature of the ballast used. We have ballast from Indiana and Ohio in which our ties don't last nearly as long as from other sections; you find lime and dirt among it. I should like to come to some decision as to the lasting time taking into consideration the traffic on the road. I know some roads where ties have lasted eight years and they are apparently good ties now, but there is not much traffic on them.

Mr. PRESTON.—My idea is where there is a light traffic, chestnut ties will last a number of years longer than where there is a heavy traffic, that would give them a chance to rot out; but where they are used hard they will wear out, instead of giving them time to rot out. I do not know as there has been any evidence here that shows us the life of a chestnut tie, providing it is not worn out. There is no evidence of a chestnut tie rotting out, as I understand it, thus far.

Mr. SULLIVAN.—I have had no experience in chestnut ties, nor in cedar nor hemlock.

Mr. STEVENS.—In what section of the country was the hemlock cut lasting 11 years?

Mr. HUNTINGTON.—On the Ogdensburg Railroad, cut in St. Lawrence County and in St. Albans County, on the Vermont Central, and lasted 11 years; white hemlock ties, and they were just used in the natural state, not burnettized nor any preserving process used.

Mr. PRESTON.—Mr. Shanks, will you tell us how long a chestnut tie will last, the average life, provided there is a light traffic, so that it is allowed to rot out?

Mr. SHANKS.—I do not know that I am capable of doing that for the reason that I have not had sufficient experience with a chestnut tie. We had some ties in the road we left until they had rotted out; they had been in some 16 or 17 years, to rot out.

Mr. PRESTON.—Give us the life of a hemlock and spruce?

Mr. SHANKS.—The life of hemlock is about three years; they rot out. The spruce tie rotted out with me in five years. That has been my experience all through Canada; after that length of time you can pick them out or shovel them out, as you choose, but a tamarack will last a little longer. The heart of a tamarack tie will be hard when the sap is all rotted off. Cedar is similar.

Mr. WISWELL.—The timber Mr. Huntington speaks of, was cut on the other side of the lake, in the vicinity of Franklin County.

Mr. SHANKS.—It was upland and swamp cedar, both; but we always consider the upland the best, also the same with hemlock.

Mr. WHITNEY.—In regard to the life of a chestnut tie, I will say there is a piece of track belonging to the Boston & Albany road where the ties have been in nearly 20 years, there are cars on that track nearly all the time. Those ties have been in there to my knowledge 20 years. During the last year they took out some of them, and there were many of them so solid that the section men split them up for firewood. The centre of the tie was very sound. Those were small chestnut ties, four or five inch face. They were laid there in 1859, and were hewed ties. Those ties rotted out, they did not wear out; so that in my opinion, the life of a chestnut tie is about 20 years where there is not much wear, and I think cedar ties to my knowledge have lasted that length of time.

Mr. FULLER.—Don't you think a tie in a track where a wheel is seldom turned will rot faster than under a track where there is considerable traffic?

Mr. WHITNEY.—I do. I think they will rot faster because the grass and weeds are allowed to grow around them and decay, whereas a track we are using constantly, is kept clean and the gravel is being stirred up and that I think preserves the tie, but where you have heavy traffic the tie wears out.

Mr. FULLER.—The natural decay then on the road where there is heavy traffic is not as great as where the ties are not used at all?

Mr. WHITNEY.—That is my experience.

Mr. FULLER.—Then on a road where the ties are cut out partly, and decay partly, they will last as long as on a road where the traffic is light and decay greater.

Mr. WHITNEY.—Our ties wear out faster where we have a heavy traffic. They cut out there; the rail cuts through them; yet the decay is not so rapid. Take a six or seven-inch tie; when it is cut down two inches, it is time to take it out. I have no doubt but the water preserves ties. In some cuts on our road the ties last one-third longer than where it is dry. That is so in regard to cedar ties I know.

Mr. SULLIVAN.—In order to score one point from this discussion, I offer this resolution: "Resolved, That the best time for cutting timber for ties is during the months of September, October, November and December."

On motion of Mr. Latimer the resolution was made to read, and it was voted, that "the best time for cutting timber for ties is during the months of August, September, October, November and December."

THE PRESIDENT.—The next question before the house is upon "frogs, crossings, and switches."

Mr. SULLIVAN.—I should like to hear from different road-masters or from any one in regard to the best angle of frog, which would be the most economical.

Mr. WISWELL.—My experience has not been a fair test, although we have several angles of frogs. We first commenced with a cast-steel frog, and then took up the Mansfield elastic frog; that gives the best satisfaction of any we have used. The long angle frog gives better satisfaction than the short frog. I should be in favor of not using anything less than a one-in-nine.

Mr. LENBOON.—I find one to ten is the best, keeping on the inside of the curve, and in fact on the outside of the curve I would use the same. I find the cast-steel point to wear very satisfactorily.

Mr. BURNETT.—We make our own frogs, and we find they suit us; the best to be 18 feet long, with a rigid frog, and for general use our angle is one-tenth. We use one in eight and one in seven in particular places. One in seven and one in ten make a very nice lead. We have used a spring rail frog; it is a good frog, and I see no reason why it should not be as safe as a rigid frog. I think it will outwear any frog made. We use one-in-ten frog, with a lead varying from 60 to 64 feet. For a stub switch, and we now use a stub switch wholly, but have not determined the result, as they have only been in a short time. We did use a Mansfield frog, but it did not prove a success with us.

Mr. SULLIVAN.—In setting the guard-rail for the protection of a frog, we calculate to leave 1½ inch opening in the throat, yet that varies a little, caused by the drilling perhaps.

Mr. LENBOON.—We find the spring-rail frog better than any of them, giving better satisfaction in wearing, although last winter we had six or seven of them break, which we thought was caused by the steel being too hard. We have a number of others we have had in four or five years.

Mr. LATIMER.—I would like to present a resolution on that subject. It is an important question. It has been asserted that the steel spring-rail frog is not safe. We have on the Atlantic & Great Western Railroad four or five steel spring-rail frogs, which have been in there eight years, ever since I have been on the road, and before, and they are in perfect order to-day. I will present this resolution:

"Resolved, That the steel spring-rail frog is safe, and is more economical than all other steel rail frogs."

Now, that can be decided, for if there is a roadmaster here who knows where there has been an accident, or where it has proved unsafe, that would militate in some respects against the passage of such a resolution. The object is to arrive at a decision.

Mr. SULLIVAN.—We have been using the spring-rail frog a little over a year. It lasts longer than the rigid frog, which will last only one year.

Mr. WHITNEY.—I have one steel spring-rail frog which has been on our main line for ten years, and I do not see why it is not good for ten years more, and it has never cost one cent for repairs.

Mr. LATIMER.—If there is an objection, I would like to hear it.

The motion on Mr. Latimer's resolution was here put and carried by a standing vote, 15 to 6.

Mr. HARDY.—Before you declare that vote, I think as long

as the thing is so near a tie it is hardly necessary for it to go on record.

Mr. LATIMER.—Fifteen to six.

Mr. HARDY.—I think there are many here who did not vote, not having had experience, and I should rather not have it declared.

Mr. ADAMSON.—I voted in the negative. I think a spring-frog is more liable to get out of repair, particularly in winter time.

Mr. WISEMAN.—I have on my road on the main line a Mansfield frog, put in a day before a spring-rail frog, and a Rigid Frog, put in since. The Mansfield frog wore out both of them. The spring-rail frog wears much faster and wears out the spring-rail and the rivets become loose. The points hammer down very fast. The most economical frog with us is the Mansfield frog with 1½ inch opening.

Mr. FULLER.—I have been using the spring-rail frog I think as long as it has been made. We have nearly the first frog manufactured put in our track in 1870, over which has passed 100,000 trains and as many as 75,000 freight trains, and there has never been one dollar expended upon it, and it looks reasonable too. Why should we cut a wide space of two inches, more or less, through our track, and make every wheel jump there? and especially there is a large majority of wheels on freight cars which are concave on the face, and the whole weight of the train comes on the guard-rail, fixed rigid, when we can use a concave frog, subject to no pounding, at the point where the side track is little used. Of course, if you use the side track nearly as much as the main track, it is a different matter; but where the side track is little used, it gives you a plain, unbroken track. It is far better than any Mansfield frog. With the spring-rail frog you get a plain, unbroken track, and it seems to me common-sense will teach us that the wear is a great deal less, and the frog that wears the longest is the most economical.

THE PRESIDENT.—I had considerable experience with the spring-rail frog several years ago, and they troubled us a little in winter, as the snow would get in, and in two or three instances the spring-rail got out.

Mr. FULLER.—Supposing a spring-rail got fastened two or three inches from the point, it is then nothing but a fixed frog, and I have yet to hear of an accident resulting therefrom.

Mr. WISWELL.—If I have been informed correctly, one of the worst accidents that ever occurred on the Old Colony road was in consequence of a frog. It resulted from a spring-frog breaking.

Mr. PRESTON.—I object to the resolution. It covers too much ground. I have had more experience with the solid frog than with the spring-frog; but my idea of the matter is this, that for a warm climate the spring-rail frog is all right, but for a cold country, with a good deal of snow and ice, and water, very changeable, the spring-frog is not a safe frog to use. I have been on the road I am working on for almost 23 years. When I first came on the road we used spring-rail frogs, but we are now discarding them, and we have not a spring-frog on my division of 107 miles. The spring-frog, I understand, is patented.

Mr. LATIMER.—No.

Mr. PRESTON.—Then the patent has expired?

Mr. FULLER.—The only patent was in the spring.

Mr. PRESTON.—Well, this Association is just in its infancy, and my idea is this—while road-masters cannot direct our managers in any way, perhaps we may recommend a certain frog. Now, I could go home and recommend a certain kind of frog or switch on account of action taken here, but I think it is a little out of place for us to come here and vote to proclaim broadcast to the world that a certain frog, got up by a certain firm—

Mr. LATIMER.—No.

Mr. PRESTON.—That is the amount of it—that the steel spring-rail frog is the best frog in the world. I would not favor any man's manufacture.

Mr. FULLER.—They are bought in open market.

Mr. LATIMER.—And manufactured by all roads.

Mr. PRESTON.—So do many shops manufacture things they should not.

Mr. FULLER.—That is the point we want to make. We want to be able to advise our managers what material to buy.

Mr. LATIMER.—I said if any of you have any objections to make, let them make them. The resolution is now put and carried.

Mr. PRESTON.—Well, I didn't think there was a man here who thought it was going to carry. I thought it would idle in the shell.

Mr. WILSON.—I have had some experience in spring-frogs, more than in rigid ones. Our Secretary speaks of this Mansfield frog. I have used the Mansfield combined frog, which I always thought was a good frog, and for my choice I should like a rigid steel frog with the shank of the rail filled solid straight to the ball, then you have something which I think will wear.

Mr. SHANKS.—I have got two of these spring-rail frogs, put in three years ago, and the one that has been used the most has got to be replaced inside of six months if it continues to be a spring-rail frog. The idea they won't wear out, is absurd. They will wear out; it only requires traffic to do it. I do not think any rail is safe under a locomotive or cars, that is movable, and no man can make me believe it is. It may do in a warm country, but not in our northern climate where we have so much ice and snow. You have nothing to prevent your wrong rail from moving. I do not like the spring-frog for that reason.

Mr. HARDY.—Is it best for this association, with our varied experience and with only the light we have here collected in these few moments, with no statistics, no table of facts to show the relative value, to cast the weight of our experience in favor of any particular kind of frog?

Now I have to offer a compromise in this matter, that is that we refer the resolution, and also that the whole subject of frogs to a committee to report at the next annual meeting.

Mr. LATIMER.—Gentlemen, I think when a resolution is offered, you all ought to state your objections and bring your arguments to bear. I said if any one has any objection, state it before hand, there was no one arose and then the resolution was carried. If there has been an exceptionable case of accident in the case of a spring-rail frog, you should not hardly condemn it, for where there has been one accident with a spring-rail frog there have been a thousand with the others. The Michigan Central has always used them, the Chicago, Burlington & Quincy is equipped with them, and the Pennsylvania Road, I think. You cannot get a unanimous opinion as to its safety. You can never get the whole to agree upon anything. You can never get any closer vote; however, I am willing to re-consider the vote and vote over again, and I think there would be more vote for it than before. If there is any possibility of a misunderstanding, I am willing to re-consider, but it seems to me you will never have a better opportunity to come to an understanding than now. There is no patent on it, I do not advocate anybody's patent. That frog can be manufactured by anybody in this country. Some one has said it is not adopted to a cold climate. The Atlantic & Great Western road has as much snow to contend with as any part of the country, and we have spring-rails there. In one place it is often 30 degrees

below zero, and there we have these frogs lasting eight years. Now may be it would not be agreeable to the rest of you to rescind this vote; I am only one among you, yet I think it is proper to decide that in the opinion of the majority of this body it is a safe and economical frog.

Mr. WISWELL.—I do not want to say the steel-rail spring-frog is a bad frog. I would like to have a year to test that matter thoroughly, and then I would be perhaps ready to vote upon the report. I would move that that resolution be reconsidered and that a committee of five be appointed to investigate the spring-frog question upon roads where it is used exclusively, and also upon roads where they have used the rigid frog, and not take this and that man's say, but find to a certainty from the officials of the roads, the engineers and others of experience, the difference between the two frogs as to economy and safety. I would make that as a resolution—I mean the spring-rail frog and the steel-rail rigid frog. However, I first move the reconsideration of the last vote.

Mr. BURNETT.—The argument has been confined to steel-rail spring, and steel-rail rigid frogs. We do not want to take in patent frogs, or to include the whole manufacture of frogs.

The question was put and carried.

Mr. PRESTON.—I should like to understand what motion this is. It seems to me we are getting mixed on this. I confess I am a little fuddled myself.

Mr. LATIMER.—In order to get out of this dilemma, I offer this: "Resolved, That the steel spring-rail frog is safe and economical."

This motion was carried.

The PRESIDENT.—There is a motion before the convention that a committee of five be appointed, to report at the next meeting on the question of frogs. Carried.

The following were appointed by the President (Mr. Hardy having withdrawn in favor of Mr. Mariani): Mr. Geo. T. Wiswell, Mr. T. G. Armstrong, Mr. Sullivan, Mr. Miner, Mr. Mariani.

The New York Legislative Investigation of Railroad Practices.

The Assembly Committee, week before last, took some testimony regarding the Utica & Black River Railroad, which we did not report. Nothing but ordinary and universal methods of making rates, etc., was developed.

Friday, Oct. 10, the full committee resumed sessions in New York, holding its meetings in the Chamber of Commerce rooms. Mr. Simon Sterne represented the Chamber of Commerce, Judge Shipman appeared for the Erie, and Chauncey M. Depew for the New York Central.

Mr. Joseph W. Guppy, who had been in the service of the Erie Company from 1850 to 1857, and from 1859 to 1872, as telegraph operator, General Superintendent's clerk and Assistant General Superintendent, was examined during the whole of Friday's session. He said he had taken pains to keep informed as to what was going on in the company. Eldredge was President in 1867, when Jay Gould became a director. When Eldredge retired, in 1868, the stock and debts of the company amounted to about \$51,000,000; in 1872, when Gould went out, they were \$116,000,000, or \$64,000,000 more. When Mr. Jewett was made Receiver, they had increased further to \$142,000,000. Of this increase, only \$7,000,000 was charged to construction account. He thought that the earnings, if the money had been spent as judiciously as on the New York Central, were sufficient from the time Gould left to the receivership, to maintain the road properly. He gave the names of the branches which had been leased before Gould's accession and of those which were leased during his administration. The Chemung Railroad was one of the former. It was leased to the Erie for \$30,000 a year and the Canandaigua road for \$25,000. These leases were profitable to the Erie, as there was a heavy coal traffic over them. By the terms of the lease a failure to pay the rental on one road worked a forfeiture of the leases of both. Gould bought a controlling interest in the stocks of these two roads, the par value of which was but \$880,000, and then, in 1871, the Erie failed to pay the rental, and the roads reverted to the stockholders. Gould then sold his stock to the Northern Central Company for \$3,000,000 in bonds. In his settlement with the Erie Company Gould paid over \$340,000 of these bonds.

In 1868 the Erie leased the Northern Railroad of New Jersey, with a capital stock of \$159,000 and a funded debt of \$300,000. This lease was dropped, the stock was made \$1,000,000 and the bonds \$400,000, and afterward it was again leased to the Erie for 5 per cent. on the stock and 7 per cent. on the bonds, though it had never previously paid a dividend. The increased stocks and bonds, he said, were divided among certain Erie officers.

The improvements constituting the National Stock Yards were made and the land for them purchased by the Erie Company. The National Stock Yards Company paid for them by \$1,000,000 in bonds secured by the property, and distributed its \$1,000,000 of stock among Fisk, Gould, Charles Robinson, and John Sherman, of Chicago. Judge Barnard received 800 shares. The witness himself received 100 shares, which he said was received in lieu of increase of salary which he had applied for. No one paid anything for the stock. Gould turned over \$106,000 of the bonds of these yards in his settlement with Mr. Jewett.

Some objection being made to receiving the testimony, Mr. Sterne said that the intention was to show that the things which Gould turned over to the company were actually the company's property, though the suit brought was to recover \$10,000,000, being his share of the overissue of Erie stock.

Mr. Guppy said that in the winter of 1868-69 the Erie Company leased its shops at Dunkirk to Mr. H. G. Brooks, who organized a company for building locomotives and paid for the lease with bonds issued on the leased property. The stock did not represent any money paid. Witness did not know who got this stock.

The Erie Emigrant Company was organized in the Erie offices and received a commission on all emigrants passing over the road. It had no other office than the Erie offices. Gould and Fisk received the commissions. The Jefferson Railroad, the Bluestone Company, the Glenwood Coal Company, the Allegheny Transportation Company, and the Erie Junction & Suspension Bridge Railroad were described by the witness as formed substantially in the same way as the National Stock Yards Company, the Erie paying for everything, taking its pay in bonds, or part of the stocks and bonds, and then renting the properties at rates which would pay dividends on all the stock, which was divided among the Erie officers and others who engineered the schemes. It was securities of these companies that were given by Gould in his settlement with Jewett.

The Jefferson Car Company was organized to supply the Erie with coal cars. It had a nominal capital of \$1,000,000, but no offices or car-works. The stock was increased afterward, and of the increase witness received 500 shares; General McQuade, of Utica, 500; Gould, 1,000; Fisk, 1,000. No money was paid on this increase. Witness was offered \$10,000 a year and a bonus of 100 shares to manage the company, but Gould would not let him leave the Erie.

In March or April, 1874, Jay Gould sent for the witness and told him that if he would get Dunan (then Auditor of the Erie) to make an affidavit to what he knew of the transactions of the McHenry people, he (Gould) would have witness made joint Receiver of the Erie with Mr. Pratt, of Elmira. Witness met Dunan, and finally induced him to make the affidavit. Gould told witness he had so fixed things with the Attorney-General (Daniel Pratt, of Syracuse), through Hamilton, of Syracuse, and Frisby, of Elmira, that the suit would be discontinued; after Jewett was appointed Receiver (on the people's suit), witness talked with Gould about being dropped, and told him he thought all the transactions had inured for his benefit alone; Gould replied that the suits were dragging along in the courts, and by the way they were going it was likely they would drag along for years; it was necessary for his plans that Mr. Jewett should be appointed Receiver; he said it would be effected by having the interest on the mortgage bonds defaulted; the road would then be sold under foreclosure, the Attorney-General's action would never be heard of, and all the old suits would be wiped out; witness first heard that Jewett was to be appointed Receiver from Mr. Bingham, one of Gould's lawyers; it was about five days before the appointment was made; Bingham called at the house of witness and told him.

Being cross-examined by Judge Shipman, Mr. Guppy said that he had not seen Gould since 1877; in that year Gould desired particularly to inquire about the circumstances of the Sickles raid, but witness declined to mix himself up in the matter at all; witness expected to be made joint Receiver of the Erie road, but was not; he had never applied, directly or indirectly, to Mr. Gould for money; he never rendered any personal services to Mr. Fisk; his acquaintance with Fisk was purely official; could not fix the date to a day or week when Gould told him he was going to form a combination with Jewett; spoke to several persons about it shortly after; Mr. Henry Thompson was one of them; Gould told witness that he would attend to the matter of witness's bonds when he should be appointed Receiver; the ground of the suit against the road was the payment of an illegal dividend.

Under the alternate questionings of Mr. Sterne and Judge Shipman, the witness stated that when, in December, 1877, Gould talked with witness, he told him Jewett would buy his stock-yard stock for \$10,000; but the consideration was that the witness should give some evidence in the McHenry suits; he wanted witness to testify how they had approached him, and said with his evidence they would knock their suits out of court and send them all to State Prison; witness declined to have anything to do with the matter; he was seriously sick, and did not care to be bothered; Gould said it would be the only chance witness would have to sell his stock; and he replied that in that case he would never sell it; then Gould said he would have the evidence anyhow; that the court would issue an order to take it at his house *ex parte*; "I then told him," said the witness, "that he had better leave me alone, or there would be trouble, and saying, 'Young man, you know what that means,' I left him;" Gould afterward sent his lawyer, Hill, to the house, got Pratt, of Elmira, to write to him, and even sent an Erie detective to him; witness showed the man the door.

Being pressed by Judge Shipman to testify how he had been approached by the McHenry people, Mr. Guppy said: "They told me if I would join them, and they were successful, they would share the swag. The other fellows had not stolen all there was, and enough was still left for them all." The witness then left the stand, and the committee adjourned for the day.

On opening the session Saturday morning the examination of Mr. Guppy by Judge Shipman was continued. He said the proposition of the McHenry party to him was made through General Sickles. He did not know how Gould heard of it. Witness had mentioned the matter to Mr. H. V. D. Pratt, of Elmira, and Gould may have heard of it through him. He never made a proposition to Gould to use this information; he declined absolutely to join with him in any way. Witness said he was an invalid and he feared he was so fatigued during the cross-examination Friday that his statements concerning some of the corporations may have been mistaken, particularly with regard to the Brooks Locomotive Works and the Jefferson Car Company.

The fraud in these two cases consisted not in the organization of the companies, but in the circumstances of the Erie road, which compelled a resort to such methods; then the stock was given to Gould to keep him quiet, and prevent him from blackmailing the men who had put their money into the concerns, so that it cost Gould nothing; but in the settlement with Jewett, he was allowed par for these stocks when they were worthless, and no harm would have happened to the Erie Company if they had not been acquired; the credit of the Erie had run down so low when the Jefferson Car Company was started that only through its means could cars, of which the road stood absolutely in need, be obtained. The first contract with this company was amended in favor of the Erie Company on representations that the witness himself made that the Erie was paying more for the cars than they were worth.

In reply to a question from Mr. Sterne, as to what was the actual value of the stocks turned over to Receiver Jewett by Gould in the "restitution" settlement, Mr. Guppy said: "Their total nominal value was between \$5,000,000 and \$6,000,000, but I should hate to give more than \$200,000 for them." This completed Mr. Guppy's testimony.

Mr. Harlan A. Pierce, connected with the New York *Commercial Bulletin*, but very recently become editor of the *American Railroad Journal*, offered some testimony as to the difference between steamer rates from New York and other ports, which he was requested to present in tabular form Monday. He also testified that a discrimination of 5 cents per 100 lbs. on grain shipments from the West was made during the winter of 1877-8 in favor of two New York grain firms—David Dows & Co. and Jesse Hoyt & Co. He had heard of a pool among Southwestern roads on cotton shipments. His testimony was based on inquiry among merchants, etc.

Mr. Abraham Wolff, of the banking firm of Kuhn, Loeb & Co., testified that in 1874 his firm voted on 56,000 shares of Erie stock, which it did not own, though they were registered in its name on the books. They were bought for customers. It was customary for banking firms to vote on shares in this way.

Mr. Isaac L. Hewitt, of Brooklyn, testified that he had an oil refinery in Cleveland from 1863 to 1871. By the arrangement made with the railroads by the Standard Oil Company it became impossible for his firm to continue the business, having to pay much more for transportation than that company. He was compelled to sell out to John Rockefeller, President of the Standard Company, at 50 cents on the dollar of the construction account; the factory went into the hands of the company, and witness believed it was afterward dismantled; the other outside dealers had to go under at the same rates; had not been in the oil business since—no chance for it; witness had been to Blanchard, Watson, Vanderbilt and other railroad men; could not get any satisfaction from them; had a talk with Mr. Rutter once, who was friendly to him; it was after witness had been compelled to sell out; Rutter said to him: "The fact is, Mr. Hewitt, I am too good a friend of yours to advise you to have anything to do with the oil business." In reply to a question

of Mr. Sterne, the witness said that every barrel, every particle of oil coming into New York to-day was controlled by John Rockefeller; at the time the Standard Oil Company was buying up the factories of dealers and driving them out of the business, it had not a single factory of its own.

At Monday's session Mr. J. H. Rutter, General Traffic Manager of the New York Central, was asked whether it was true that his company paid 20 cents a barrel on all oil carried over the road to the American Transfer Company, as Mr. Cassatt, of the Pennsylvania, had testified. Mr. Rutter said that no money had been paid to the American Transfer Company. All payments for drawbacks would go through his office. He would not say that Mr. Vanderbilt may not have made payments to that company without witness' knowledge. Being asked what was the lowest net rate given this year to the Standard Oil Company, Mr. Rutter objected to giving this information so that it could reach the Tide-Water Pipe Line Co., which had threatened to destroy the Central's oil business. Mr. Depew also argued against requiring such information, as the pipe line company, being in another state, could not be compelled to make public its rates. Mr. Rutter stated that his company had given the same rates since June of this year to other oil-shippers as to the Standard Oil Co., and he also said that it had never given that company a rebate which it did not give some one else. The Standard was allowed something for providing its own terminal facilities. The Central contracted with it not to make lower rates to others than to it. Mr. Rutter claimed that the New York Central did not help the Standard Company to crush out competition, and then become compelled to submit to its demands because it controlled the business. He said that there was no conference with the Pennsylvania when the Central made its contract with the Standard Company in 1875. Being required to give the lowest rate made this year to the Standard, he gave it privately to the Chairman of the Committee, who said he would not make it public at present.

Judge Shipman, on the part of the New York, Lake Erie & Western, submitted its contracts with the Union Steamboat Co., the lessee of the Weehawken oil docks, the condensed balance-sheets of the Hillsdale Coal & Iron Co., and the Northwestern Exchange & Mining Co., of Dec. 31 last, and its contracts with the Union Dry Dock Co. and the Buffalo Creek Railroad Co. of Buffalo.

Mr. Rutter said that he would not say that the present oil rate covered the cost of transportation, but he thought it better to carry oil at those rates than not to carry it at all. He thought the business was worth having.

Mr. Octave Chanute, Chief Engineer and Assistant General Superintendent of the New York, Lake Erie & Western, testified that the improvements made on the Erie from 1873 to 1878 were of the value of \$4,000,000 to \$5,000,000. Before 1873 few improvements had been made, and it was not adequate to its business. Since 1873 large improvements had been made—second tracks, new sidings, elevators at Buffalo and Jersey City, new docks, changes of depots, steel rails, etc., which, with the third rail, would increase earnings about \$1,000,000 a year. The improvements in progress he estimated to cost about \$5,000,000. Railroad supplies had fallen from 20 to 30 per cent. since 1873, iron more. Track labor that cost \$1.50 to \$1.60 a day in 1873 now costs \$1.10 to \$1.20; the price of engines was 70 per cent., of cars 40 to 50 per cent. lower; of bridges 35 to 40 per cent. The economy in rails, by the introduction of steel, was 30 to 40 per cent.; in fuel the saving was probably less than 30 per cent.

Mr. Chanute was examined at some length, as an expert, on the elements of the cost of transportation. He said he could not tell the difference between the cost on the Erie and the Central; their train-roads were as 28 to 40. A rate of 10 cents per 100 lbs. from Chicago to New York might pay the direct expenses incurred above what the expenses would have been if the freight had been refused.

Mr. J. A. Bostwick, of the Standard Oil Co., objected to being examined. He said he had been indicted in Pennsylvania for conspiring to force the Pennsylvania to accept such rate for carrying oil as the Standard Co. chose. His competitors in business had done this, and expected to get help from his testimony before this Committee; and if he should refuse to answer the public would assume that he was guilty of something wrong.

The Committee refused to excuse him, but agreed to examine into his rights as a witness under indictment.

At the session of Tuesday, Mr. Bostwick failed to appear, and also Mr. Charles Pratt, an oil-refiner who works in harmony with the Standard Oil Company, who had been subpoenaed. The Chairman expressed the opinion that these gentlemen would refuse to testify, and that it would be necessary to report them to the Legislature for contempt.

Mr. H. H. Rogers, of the firm of Charles Pratt & Co., testified that he thought the capital of the Standard Oil Co. was \$2,500,000; he had heard that it had been increased lately; he was a stockholder; the Standard did not control the business of Charles Pratt & Co.; from 90 to 95 per cent. of the refiners in the vicinity of New York he believed to be working in harmony; he wanted to consult counsel before answering whether Charles Pratt & Co. shipped their oil at the same rates as the Standard Oil Co. by arrangement with the latter company.

Mr. John F. Mills, of the firm of Abendroth Brothers, iron founders, whose foundry is on the New York, New Haven & Hartford Railroad at Port Chester, 26 miles from New York, testified that his firm had had to pay 16 cents per 100 lbs. from Port Chester to Boston when the rate from New York was but 10 cents. Their rate had recently been reduced to 14 cents. It shipped about 20 tons a day. Port Chester was not a competing point. They sometimes found it cheaper to ship to New York and thence to Boston.

Mr. Charles L. Morehouse, an oil refiner, testified that, up to two years ago, he had been in the business in Cleveland since 1861. His net profits were, up to 1875, from \$21,000 to \$22,000 a year; his preliminary investments for fixtures amounted to \$41,000; after the Standard Oil Company had come into existence, he was compelled to pay freightage at the rate of from \$1.50 to \$2, against 75 cents charged the Standard Oil Company, and no rebates were ever given; about the close of the war, John Rockefeller, the founder of the Standard Oil Company, built a small refinery, near the witness's place, for burning oil and producing heavy residuum, or tar; Rockefeller's capacity was 500 barrels a day, and his capital was about \$30,000; two years after starting he took in the Standard Oil Company and having interested some of the wealthy men in Cleveland, he increased his capital stock to \$250,000 in 1867 or 1868; from that time out they continued to absorb all the refineries, until scarcely one was left independent of them; in Pennsylvania the efforts at absorption met with more opposition, yet nearly all of them were in time abandoned or run in the interests of the Standard Oil Company. In New York, where the same process of absorption was put in operation, all, with one exception, were swallowed up or abandoned. When the witness built his refinery there was an express understanding between himself and Rockefeller, by which he (Morehouse) was to receive all the stock he wanted from Rockefeller. After the organization of the Standard Oil Company, a gradual attempt was made to squeeze Mr. Morehouse out of the business; for instance, instead of receiving 25 barrels of product per day, according to agreement, he received only 12 barrels, while prices of

residuum were advanced from 6 cents per gallon to 12½ cents per gallon. An offer was made in the meantime to purchase his business for \$15,000; he finally sold the business because he had only one alternative—either to sell or die. The company paid cash for the works, "and," added Mr. Morehouse, "I am wiped out and made a poor man by my operations."

Mr. Abiel Wood, who had been in the oil commission business, testified that the advantages in rates given the Standard Oil Company had destroyed his business. Those connected with it could buy oil in Cleveland at rates which witnesses could not afford to pay, and yet could undersell him in New York.

When the committee had excused Mr. Wood from further attendance, Chairman Hepburn called, for the third time, the name of J. A. Bostwick, Charles Pratt, and F. B. Squire. Receiving no response, Mr. Hepburn said: "It is very evident that these witnesses do not intend to appear here. They have been personally served, and none of them have appeared before the committee except Mr. Bostwick. He came here yesterday, was sworn, and objected to being examined without the presence of counsel. The committee excused him from further appearance before it until 12 o'clock to-day, at which time he said he would be here. We are not disposed to sit here idle, waiting for witnesses whose duty it is to be here. There is but one other course to pursue. Everybody familiar with a committee of this kind, knows what the powers of this committee are. We have no power to compel by attachment the attendance of witnesses. We have simply to report these gentlemen to the bar of the next Legislature."

On Wednesday, Oct. 15, the Committee took up the cases of the elevated railroads in New York city. The first witness was Mr. Garrison, of the Manhattan Company, and his testimony was substantially as follows: The Manhattan Elevated Railroad Company was organized under the Rapid Transit law, and now operates both elevated roads; the leasing of the Metropolitan and the New York Elevated Railroads actually took place on Jan. 31 last, but the leases were not signed until May 20, which date the documents bear; prior to that the Manhattan Company had no road; it had some paid-in capital at the time of the leasing of the roads, but how much, Mr. Garrison could not tell; the amount called for by the terms of the lease was \$18,000,000, equally divided between the Metropolitan and the New York Companies. The capital stock of the New York Elevated Railroad Company is \$6,500,000, and its bonded indebtedness \$8,500,000. It has yet the right to build north of the Harlem River, and in the event of that being determined upon, the New York Elevated Railroad Company will furnish the money to the Manhattan Elevated Railroad Company. Under a similar arrangement the Manhattan Company is extending the line of the Metropolitan. The Manhattan Company has not issued any bonds, nor does it contemplate the issue of any, so far as Mr. Garrison is aware; under the original articles of the association, its capital stock was to be \$2,000,000; it was increased last spring; the amount paid in, as called for by the Rapid Transit act, is 5 per cent., or \$100,000; witness could not tell how that amount was expended; when the capital stock was increased to \$18,000,000, no cash was paid in; the \$6,500,000 stock belonging to the Metropolitan was handed over to the New York Loan & Improvement Company, which built the road; the bonded issue of the Metropolitan Company is \$5,300,000; all the stock to be issued has been already issued, but \$3,000,000 or \$4,000,000 of bonds yet remained; the New York Elevated Company does not contemplate an additional issue of bonds.

Mr. Garrison further testified that the Metropolitan Company was required to pay to the city 2 per cent. on the amounts of its dividends. The whole capital stock of the Metropolitan is represented now by \$15,000,000 of built road; the actual cost per mile was \$800,000; the cars cost \$3,400 each, and the engines an average of \$5,000 or \$5,200; the road has 50 engines and 150 cars.

As to the relations of the Metropolitan and the New York Loan & Improvement Company, Mr. Garrison's explanation was to the effect that the members of the Loan & Improvement Company were the owners of nearly all of the original stock of Metropolitan stock, and that whatever was to be paid in really belonged to it; a few shares of Metropolitan stock were held by individuals to enable them to hold office in the company. Cross-examined by Mr. McCook, Mr. Garrison said that the Metropolitan Company had not as yet paid a dividend; the interest on bonds had been paid out of the earnings; there would be a dividend, he believed, on Jan. 1 next.

After recess, the contracts between the Loan & Improvement Company and the Gilbert Company, by which the former agreed to construct the road under stipulations, were read and received in evidence. Copies of the leases whereby the Manhattan Company assumed control of the New York and the Metropolitan Roads were also submitted. Mr. Jose F. Navarro, who is a Vice-President of the Loan & Improvement Company and a director of both the elevated railroads, was questioned closely about the action of the Loan & Improvement Company in canceling \$4,500,000 of second mortgage bonds of the Metropolitan Railroad Company. His answer was that the bonds were canceled in consideration of the leasing of the road to the Manhattan Company; the directors of the Metropolitan were substantially those of the Gilbert Company before the latter contracted with the Loan & Improvement Company for the building of the line; after the contract, the stock of the Gilbert became the property of the Metropolitan; Mr. Navarro's connection with the Loan & Improvement Company began in the fall of 1875, when he became a director of it; its capital stock was about \$100,000, of which \$25,000 had been paid in; its business was to build public works and to take securities in payment for work performed by it; no works were in contemplation at the time he joined; other gentlemen joined it about the same time.

He testified somewhat further as to the condition of the Gilbert Company when the contract was made. He further said that the roads had been a great benefit to the city, and he did not think they could be properly worked at 5 cents fare.

Mr. Brewster handed the committee a comparative statement of the traffic and average fares on the three lines for the quarter ending Sept. 30. The following is a recapitulation:

	Passengers.	Revenue.	Average fares.
Third avenue.....	6,936,924	\$513,854.05	7.41
Ninth avenue.....	919,487	65,863.10	7.15
Sixth avenue.....	4,156,545	327,305.45	7.88
Total.....	12,012,956	\$906,992.60	7.55

Mr. Benjamin Brewster, a stockholder of the New York Elevated Railroad, was the next witness. He testified that the road had cost \$700,000 per mile, and that more than \$10,000,000 had been paid out; the stock was taken at par, and the bonds at 12½ cents, subject to an additional assessment, to complete the road; that assessment was never called for; the difference between the outlay of \$10,134,000, and the \$15,000,000 capital was made up by the discount on the bonds; the New York road had been opposed to the consolidation of the roads, but the Rapid Transit Commissioners, by partly

making the routes alike, had rendered the consolidation necessary. Witness did not know the limitation of the general railway act had anything to do with the fixing of the dividend at 10 per cent.

This was the concluding testimony of the day, so far as the elevated railroads were concerned. Recurring to the affairs of the Standard Oil Company, the committee called John D. Archibald, a director of the company, who testified that among the 14 other directors were John D. Rockefeller, William Rockefeller, H. M. Flagler, Charles Lockhart, W. G. Warden, O. B. Jennings, S. J. Harkness, J. M. Camden, Charles Pratt, and J. A. Bostwick. Mr. Archibald has a leading interest in the Acme Oil Company, which he asserted has no contract with the Standard Oil Company, and is not controlled by it. Some of the directors of the Standard Oil Company are directors of the Acme Oil Company; the latter ships about 8,000 barrels of crude oil per day from Titusville to New York, either by the Erie, Pennsylvania, or New York Central. When asked for the net rate of his shipments, he positively declined to answer, saying that they were doing business with lines not in the jurisdiction of this committee, and a publication of the rates would prejudice his business. Mr. Archibald had enjoyed better rates as an individual refiner before he joined the Acme corporate organization; at one time he paid 70 cents per barrel; he was now as active a competitor of the Standard Oil Company as any other refiner; as far as the influence of that company was concerned, it had resulted in better rates to the railroads.

The Committee then adjourned until the next day.

Inhumanity in Live Stock Transportation.

At the convention of the American Humane Association in Chicago last week, Mr. Zadok Street, of Ohio, who had been traveling for the society, made a report of what he had seen of abuses on the railroads and in the markets, which is reported as follows in the Chicago *Inter-Ocean*:

He said he had traveled more than 18,000 miles over the railroads—over some of them the second and third time. He had visited 1,340 stations where animals were collected for shipment. The pens where the animals were confined were muddy or full of stones, so that the cattle could not lie down. In some of them, the animals stood in mud four inches deep. He said further, in regard to shipment of animals: "We have seen cattle exposed to the hot sun, or storms, for days, while the owners were collecting their full shipment, and no arrangements of any kind for feeding or watering the animals were made while thus confined. We have seen cattle drink the filthy water that was standing in their tracks, showing their extreme thirst, before being loaded in the cars. At different times we have witnessed large cattle, cows, young calves, and hogs in the same pen, to be loaded in the same car. We have seen hogs greatly overcrowded in pens, where there was not space for them to lie down for rest, regardless of their tired or hungry condition. At different times the owners did admit that their animals had been driven from ten to eighteen miles without feed or water, before getting to a station, and that they were then loaded into the cars in that condition. We have seen at a station in Kansas, large, fine-looking, fat cattle, which the owner expected to sell for importation, that had been confined in small pens for three days and nights continuously, exposed to the hot sun, without feed or water. A man in charge of this lot said he had just received a dispatch from the owner to ship them to St. Louis without feed or water, and he said that after arriving in St. Louis he could get 100 lbs. or more of water into each one before they were sold and weighed. The weather was extremely warm, and we have seen drivers force 19 head of these large cattle into each car. To do this they were pounded and punched with poles, having a sharp nail in the end of each, until the blood would run. The same man said he was an old shipper; that he had shipped thousands of cattle, and that for them to go without feed or water for four days in succession did not hurt them, even if the weather was very hot! He also said that no experienced shipper would allow cattle to have feed or water for 24 hours before shipping them. A large number of other shippers told us they never allowed their cattle to have feed or water for at least 24 hours before loading them into the cars, because cattle would not incline to lie down if kept hungry and thirsty. We have seen many pens so crowded with cattle that there was not space for them to lie down for rest, and in their state of torment the larger ones hooked and gored the smaller ones, to the shame of their owners. We have seen scores of dead hogs at local stations, which died from heat or overdriving, and hundreds more that died after being loaded into the cars."

He had seen geese confined in pens for more than a week without water.

Years ago the railroads had built commodious pens at a distance of twenty-four hours' travel from each other, but now very few shippers unloaded at these stations. The feed-yards of the Missouri, Kansas & Texas Railroad for 450 miles from Denison to Hannibal, were controlled by one man, and were kept in good order. This was the only line where there was a full supply of feed and water at the yards. The yards at Council Bluffs, St. Joseph, Atchison and Kansas City were in good order, but the cattle and mule pens were uncovered, and the animals exposed to the sun. Animals from long distances west of the Missouri River usually unloaded at these places, but they did not have feed and water enough. The pens at East St. Louis were in good shape, but there was a deficiency of feed and water given to animals by shippers usually.

Regarding the Chicago yards the report said:

"The Union Stock Yards in Chicago are the most extensive of any on this continent, and we believe on the globe. They have 1,000 cattle pens, 1,200 hog and sheep pens, and stabling for 1,200 horses. Fifteen hundred cars of stock can be unloaded and cared for daily. The system of railways extending into different parts of the Western States, thousands of miles, centre there. They occupy 350 acres of land, and cost nearly \$5,000,000. Their repairs cost about \$150,000 annually, and it requires 700 men constantly employed in and about the yards to do the work required. They will accommodate about 10,000 cattle, 120,000 hogs, 5,000 sheep, and 1,000 horses at one time. The pens for hogs and sheep are covered; those for cattle are not covered, and the cattle are, therefore, exposed to the weather. At that place the pens are kept free from mud, generally, and animals have a full supply of feed and water when their custodians order; but, alas! it is seldom the cattle have a full supply given them, and they are frequently reloaded for the East before they have the needful time for rest, and they are driven into the cars in a tired, hungry, and thirsty condition, and are then run to Pittsburgh or Buffalo before being unloaded. We have been told by different shippers that their cattle seldom have more than from two to four hours' time for rest at either place before they are reloaded for the East. At times they are run from St. Louis and also from Chicago direct to the Eastern cities, without time for rest, or feed, or water."

"The feed yards at Pittsburgh, at Buffalo, and at Albany are all adapted for the purposes intended; the pens for hogs

and sheep are all covered, and those for cattle partly covered. They are kept in good order. A full supply of feed and water can be had whenever the shippers order them to be given. Thousands of animals are taken from their feeding places in the West, which are from six to ten days travel, and sometimes a longer time distant from the Eastern markets, and at no time are they allowed the time for rest, feed and water that their health and comfort require. All animals, it should not be forgotten, require rest and sleep as well as man; and no man could stand in one of these stock-cars for twenty-four hours without refreshment, enduring the jolting, without sickening and falling from exhaustion and suffering."

"The water troughs for hogs in all the pens at the feed yards are open, and hogs lie in them much of the time. The result is, that little, if any, pure water is ever in them, and the hogs suffer day after day for want of it."

"Upon the arrival of the trains at the feed yards, the men employed are stationed there, take the entire control of unloading animals from the cars, and putting them in their respective pens, and of giving them the feed and water the custodian directs. The dead animals are dragged from the cars. The cattle in the cars that cannot rise to their feet and are still alive, are pulled out and left to lie upon the platforms until they are sold, and they are then taken away by the men who buy dead and injured animals. The hogs that have broken backs or limbs are dragged by their ears and tails to be loaded upon trucks, and are often thrown one upon another until they are hauled away to the slaughter-houses."

"We have seen at the feed yards 100 head of large sized cattle crowded into a pen 68x95 feet, and in other pens of the same size eight head, and little hay or water given them. We have seen them in two or three hours reloaded for another two days' journey, and were told by different men at the yards that this was almost a daily occurrence, and that many shippers do not allow more than fifty or sixty pounds of hay to a car-load of cattle, and little, if any, water before they are reloaded. We have seen cattle over-crowded in pens at the stock yards, and so kept for more than twenty-four hours without food or water."

In regard to loading the report stated:

"It is no uncommon thing to see from eighteen to twenty head of large fat cattle in a car twenty-eight feet long and eight feet wide, and thirty-six to forty-eight of 1 and 2 year-old cattle in a car. Also, 120 stock hogs in each deck of a double-decked car, and from eighty to ninety large fat hogs in single-deck cars where there did not appear to be standing-room for them."

"We have seen 100 large, fat sheep forced into each deck of a double-decked car in extremely hot weather; large, fat cattle, cows, young calves and hogs overcrowded in the same car, some of the calves lying down and hogs eating the calves while yet alive! Also, large bulls in the same car with smaller cattle, the former goring the latter. We have seen hundreds of cars with cattle so overloaded that there was hardly standing room for them, and they would use all their strength to get relief until some became exhausted and fell or lay down. In that condition they were trampled upon by their fellows."

"Shippers use the goods upon their cattle until their blood runs. They wring and twist the tails of the cattle until the joints are dislocated; the poor creatures moaning piteously from the horrible cruelty. The animal, when down, would use in vain all his power to rise, which he often could not do; and in that condition was trampled to death by his fellows. The official reports of the different railroad companies show that thousands of animals arrive at stations dead, and thousands more in a crippled and tortured condition, some with broken horns or broken limbs, which compel them to lie down. We have seen ten or twelve trucks and drays from early morning until noon hauling away the dead and crippled animals at a single station."

"We are informed that in one overloaded car, one of the cows had lain down and could not rise again, and the hogs had eaten a portion of her udder, and were pulling her entrails out!"

"We have seen more than one thousand dead animals taken from a single train; dead because of overloading and confinement day after day in the cars in the hot weather, and hundreds more nearly lifeless when unloaded."

"We have seen a few humane dealers and shippers, who condemn in strong terms the general manner of treating animals in transit, and who never permit their animals to be overloaded, nor to suffer for want of rest or food, and the result is, they seldom have a dead or injured animal."

"The treatment of cattle in cars is more visible than that of hogs; this causes more comment by observers, but we believe that the cruelty to hogs generally exceeds that of cattle."

As to poultry, the report stated that the writer had seen fowls shipped in crates over 600 miles so crowded that many of them died of suffocation.

In conclusion the report said:

"The railroad companies claim to act merely as common carriers, to give stock trains the preference over all other freight trains, and to furnish the needful facilities for unloading, and good feed and water at their feeding-stations whenever shippers desire to unload. This live stock traffic is one of the most profitable kinds of business they have, and the competition for it has become so great between the rival roads that the officers leave to the shippers the whole responsibility of caring for the cattle, in order to secure their trade. Nearly all the railroad officers and their employees with whom we have conferred deprecate the cruelty and speak of it as shameful and wicked. They have informed us of many cases of outrageous acts done by some of the shippers at divers times and places. We find further that the owners of the animals are seldom with them, leaving their care to hired men."

"We have known a butcher buy a car of cattle, which he told us was a week's supply. We had men remain in full view of his slaughter house day and night, to see how the animals were treated while confined in the pens. We found that he killed two or three daily, leaving those remaining in the pens without feed or water for four or five days, until killed."

"We have seen hundreds of dressed animals at different slaughter houses, for sale in different meat markets, that were not in a healthy condition when killed. The blood had collected in many places, and by running in a small knife-blade, matter would run from them. We have seen butchers cut off these pieces to disguise the condition of the meat."

"We find there are more than one hundred millions of animals consumed annually for human food in the United States. Within a few years there has been a demand for our cattle in foreign lands, which will greatly increase the value of our exportations, if the cattle are rightly cared for. The Mississippi Valley, as all know, is one of the most productive agricultural regions on the globe, and a large portion of it is naturally adapted to the culture of corn and grass, and to the raising and feeding of domestic animals."

"During the nine months of the present year, there has been received and sold in Chicago alone, one million head of cattle; four million two hundred thousand hogs; two hundred and forty-five thousand sheep, and one thousand horses."

"From 5 to 10 per cent. of the real value of cattle and hogs

is lost by shrinkage in weight, and by death and injury done to the animals between the feeding lands of the West and the Atlantic cities.

"The commission men, the men at the feeding yards, and indeed all parties in the trade, have a large interest in this question. It may be feared that unless animals are better treated, their exportation and the packing and canning of meats will be largely reduced. This cruelty concerns the farmer, the feeder, and the laboring man, both in pecuniary and sanitary ways. All the civilized nations have taken action in favor of the better treatment of animals, and to prevent diseased meats being sold for human food. Our own citizens are more and more awake to this fact.

"The geographical position of Chicago has made her the most important live stock market in the world. Hence it is important that it should be known, at home and in foreign lands, that no diseased or crippled animals are permitted to be sold or packed for human food. If that is done the demand must immensely increase from abroad.

"With the cooperation of our best railroad, feed-yard and commission men, this Association is entirely confident of success in its humane purposes to lessen largely this revolting cruelty.

"We invoke the aid of the press and pulpit in this behalf, that, as far as may be, innocent suffering in the cattle-cars shall end, and with it other sufferings of our fellow-creatures who are equally innocent."

The subject of an improved cattle car came up, and Mr. Firth offered a resolution to offer a \$5,000 prize to inventors for a car in which animals could be fed and watered; the car not to be patented; to be used on all the roads; the money to be raised by a special subscription.

The resolution, which offers a prize of \$5,000 for a humane stock car, was passed unanimously.

Mr. Firth offered a resolution asking all members of humane societies and others to use their influence with their Members of Congress to secure the passage of a bill to regulate the shipment of animals in railroad cars with a view to lessen cruelty in transit.

Mr. Firth offered the following, which was adopted:

Voted, That while we have pointed out the barbarous abuses that yet mark the live stock traffic over railroads in report to this meeting, we, at the same time, would gratefully acknowledge the steady gain of humane matters in some parts of our land, and especially in the disuse of the goad, or prod, at the Chicago stock yards, and at all the yards of the trunk lines east of Chicago.

Voted, That we recognize the substitution of the charge for transportation of weight, rather than by the car load, as a change of much importance from the stand-point of mercy, and as also called for by the pecuniary interests of both the owners and transporters of live animals.

Michigan Railroads in 1878.

The following is condensed from the annual report of Mr. W. B. Williams, Railroad Commissioner of Michigan, for the year 1878, which has just been completed and is ready for issue:

The railroad interests of Michigan are represented by 41 distinct corporations, an increase of two over the number for 1877, viz., the Menominee River Railroad Company and the Toledo & Ann Arbor Railroad Company. The business control and management of the roads belonging to these 41 companies is vested in 27 companies. Four new corporations were formed during the year, to succeed those whose roads were sold under foreclosure of mortgage; the Allegan & South-eastern Railroad Company succeeding the Mansfield, Coldwater & Lake Michigan Railroad, as owner of the line from Allegan to Monticello; the Chicago & Western Michigan Railroad Company, who purchased the property of the Chicago & Michigan Lake Shore Railroad Company; the Detroit, Grand Haven & Milwaukee Railway Company, who succeeded the Detroit & Milwaukee Railroad Company in the ownership of one of the oldest lines of road in our state; and the Grand Haven Railroad Company, who purchased the road of the Michigan Lake Shore Railroad Company from Allegan to Muskegon. The Chicago, Saginaw & Canada Railroad and the Flint & Pere Marquette Railroad are in the hands of receivers. The Fort Wayne, Jackson & Saginaw Railroad is undergoing foreclosure, but without the intervention of a receiver.

The capital stock investment amounts to \$148,152,011.16, or \$28,127.33 per mile, as against a total of \$145,527,661.76 or \$28,371.11 per mile for 1877. While the aggregate stock has been increased during the year by the addition to this account of \$2,624,349.40, the increase in mileage has been such as to more than counterbalance it, and a decrease in the capital investment per mile of \$243.78 is the result. The amount of the capital stock investment in railroads within our state, computed on the basis of the per mile average, is \$100,255,929.95; but, for the thirty companies reporting this item, and representing an aggregate capital stock of \$136,738,695.73, only \$4,685,819, or a little less than 3½ per cent., is held by residents of Michigan.

The debt account of the roads represented in this state amounts to a total of \$161,373,743.26, of which \$145,536,192.50 is funded and \$15,837,550.76 is unfunded or floating. The debt per mile of road owned amounts to \$30,678.91, as against \$32,610.13 for 1877, being a reduction of \$1,931.22. The above total debt is a reduction from the amount for 1877 of \$5,897,678.39, and is the result of reorganizations and scaling down of liabilities to such a basis as seemed to give promise of some return on the investment. The debt liability of the railroad property lying within this state, computed on the basis of the per mile average, is \$109,350,679.64. The stock and debt investment within the state, computed on the per mile averages, amounts to \$209,606,609.59. The cost of the several railroad properties reported in our state, as reported, amounts to \$290,090,195.73, or \$55,149.38 per mile owned. The decrease in the amount charged to this account, for the year, is \$2,606,653.40.

The above total reported cost of roads and equipments is less than the combined stock and debt by \$9,436,558.66, which would seem to demand a further scaling down of those accounts.

The aggregate earnings of the several roads were \$42,716,139.05; an amount in excess of that for the previous year of \$3,176,208.99. The steady decrease in earnings since 1873, noted in the last report, seems to have reached its downward limit with 1877, and to have made a fair start on its upward course in 1878, the earnings per mile for the latter year being but little less than for 1876—the gross earnings per mile of road operated being for 1878 \$7,072.76. The earnings from passenger traffic were \$10,447,268.38; from express traffic, \$732,106.37; from carrying the mails, \$1,013,311.56, making a total of passenger-train earnings of \$12,192,686.31. The earnings from freight traffic amounted to \$30,121,618.70, and the miscellaneous earnings to \$401,834.01. The receipts in addition to earnings were \$330,107.63, making the total receipts for the year \$43,063,246.67, or \$3,283,945.27 more than for 1877. The total expense of operating the roads for the year was \$25,633,784.67, an increase over the amount for the preceding year of but \$31,981.63. The increase of earnings, with

a comparatively stationary condition of expenses, has resulted in a lower percentage of expenses to earnings than ever before, the following being the percentages of these items for several years: 1873, 66.69 per cent.; 1874, 66.54 per cent.; 1875, 71.28 per cent.; 1876, 66.07 per cent.; 1877, 64.74 per cent., and for 1878, 60 per cent.

There were five roads—Chicago & Canada Southern, Chicago & Lake Huron, Michigan Lake Shore, Michigan, Midland & Canada, and Toledo, Canada Southern & Detroit—which failed to earn enough to meet operating expenses. The operating expenses, interest and rental combined make an aggregate of \$37,931,776.77, or \$6,279.09 per mile of road operated, and are equal to 88.77 per cent. of the gross earnings. Notwithstanding the success of the year's business when considered in the aggregate, 18 companies failed to earn sufficient to balance the above combined accounts; and so serious is this deficit that it reaches the total of \$2,649,590.74.

Five companies—Chicago & Northwestern, Detroit, Lansing & Northern, Lake Shore & Michigan Southern, Michigan Central, and Mineral Range—paid dividends on their stock.

At the present time there are 3,615.36 miles of railroad in Michigan, 51 miles having been put in operation during the present year. This is an increase of 160.19 miles over 1877.

The aggregate miles run by passenger trains during the year were 9,047,896; by freight trains, 19,114,170, and by mixed trains, 408,788, which together make a train mileage, for trains earning revenue, of 28,570,854 miles. Fifteen companies report a total freight car mileage of 454,280,855 miles, of which 312,259,324 miles were run by loaded cars, and 142,021,531 by empty cars. That is to say, 31.28 per cent. of the freight car mileage was by empty cars in search of loads, or returning from the discharge of freight, to points where loads could be expected. There were carried during the year 10,615,504 passengers, a number larger than for 1877 by 670,656.

The total number of tons of freight hauled was 19,980,642, an amount in excess of that for the previous year by 3,491,431 tons. But the true measure of freight traffic is not the number of tons carried, but the number of tons carried one mile. Taking this as the measure of the year's traffic, we find that it amounted to 2,858,931,229 tons, a total in excess of the ton mileage for 1877 of 576,275,805 tons. The freight traffic was by far in excess of any previous year.

THE SCRAP HEAP.

A Train-Wrecker Caught.

Monday night, one week ago, in the vicinity of Thomson, on the Georgia Railroad, a piece of railroad iron was stuck in the middle of the track, at an angle of 45 degrees, and a few hours thereafter a freight-train ran into it, the pilot being wrenched almost off and bent around to the side of the engine. Luckily nobody was hurt, though considerable delay was caused and the engine much defaced. Detective Bill Jones was telegraphed for and immediately repaired to the spot and began to search for the guilty man.

On last Sunday night he caught his man—a heavy-set, villainous-looking negro, who was prowling around Thomson. The offender was tried in Thomson, yesterday, before a committing court, and bound over to the Superior Court. He is now in jail in Thomson. This is another triumph for Detective Jones, and we take pleasure in recording it.—*Atlanta (Ga.) Constitution*, Oct. 11.

An Officers' Car.

The Cleveland, Columbus, Cincinnati & Indianapolis shops have just turned out a new car for the use of the officers of the road, which is said to be one of the finest cars of its kind. It is 54 feet long from platform to platform and a few inches over 10 feet wide. Two state rooms, furnished with stationery beds, a business room containing a handsome writing desk and several tables, a sleeping apartment capable of accommodating four persons, and a very convenient kitchen, show the manner in which it is divided off. A very rich and handsome carpet adorns the floor, while there are elegant upholstered chairs and other furniture. The wood-work inside is black walnut, while the windows are of plate glass. The car made its first trip last week, taking several gentlemen from Cleveland to New York to attend the Time Convention.

A New Stock Car.

Several of our exchanges have mentioned a Union Pacific stock car, which seems to have attracted much attention in the course of its travels. As described, the car had a water-tank under it that would hold about 20 barrels of water, to which was attached a pump that was operated from the roof of the car. On the under side of the roof were two or three leaden pipes that were little less than sieves on the lower side, and when the shipper wished to water his stock, all he had to do was to climb to the roof of the car and do a little pumping, which would give the stock in the car a complete shower-bath. The operation could be done as well while the train was moving as standing still. The car was also partitioned off in sections, preventing stock from crowding into one end of the car and piling upon each other.

A Careful Express Messenger.

A Baltimore dispatch of Oct. 14 says: "On Saturday night last a commission house in this city sold to a market-man four coops of chickens, which had been received from the West by the Baltimore & Ohio Railroad. When the coops were being delivered one of the firm discovered a roll of paper in the bottom of one of them, and on opening the roll it was found to contain five thousand dollars in bills. On a further search in the same coop another roll was found, which contained \$2,500. It is now stated that these packages were misplaced by a careless express agent at Benwood, on the Baltimore & Ohio Railroad, and that during the transfer of express matter by the agents at that point the agent coming East took the packages and receipted for them and temporarily placed the two bundles of money on the coop. In the hurry of the moment they were forgotten, and when the coop was moved the two bundles of money fell inside. The chickens were consigned to and sold by Stewart & Co., commission merchants, by whom the money was found, as above stated, and restored to the Baltimore & Ohio Express Company. The express agent was promptly discharged."

The Consolidation Engines on the Erie.

When the Erie Company commenced preparations to lay a third rail, plans were drawn by the Chief Engineer, Octave Chanute, for a large class of locomotives, which would be standard gauge, weighing 52 tons, and with eight wheels. It was thought that a class of engines such as this could be used to advantage on the heavy grades on the Erie. Four of these large locomotives were constructed at the shops of the company at Susquehanna. These were tried upon the Jefferson Branch, a road that extends from that place to Carbondale, Pa. This road is 39 miles long and consists of two hills, each 19 miles long, where may be found the heaviest grade on the Erie Railway. Proving satisfactory, a contract was given to the Grant Locomotive Works, of Paterson, N. J., for 30 locomotives, to comply in every par-

ticular with the specifications of the company. These engines were numbered from 520 to 549 inclusive, and were delivered during the winter of 1878-79. When first put upon the road, they were disliked very much by all the employees, and terrible stories of how disastrous their employment would be to the company were scattered broadcast. It was said, furthermore, that it would take a great deal of work from the men employed on the road. For the first few months it looked as if these prognostications would prove true, for it took much longer to get over the road with them than with the smaller engines, and more work had to be put upon them to keep them in running order. Neither did they haul more cars than the smaller engines.

Four of these locomotives were put upon the Delaware Division and 26 upon the Eastern, and it was upon the latter that the most difficulty was experienced. But as summer approached, the large engines became more manageable, and more cars were added to their complement, until at last a maximum number was attained. This was a train of 40 loaded cars. Starting from Port Jervis with 40 cars, they are assisted up the hill extending from this place to the top of the Shawangunk Mountains, a distance of nearly 12 miles, by a pusher engine; then they draw their trains to what is known as Goshen grade, a short hill just west of that village, which is less than a mile long, and here assistance is needed. From there to Greycourt they proceed alone. At this point the heaviest grade on the Eastern Division commences. It is less than three miles in length, but assistance is required. Arriving at the top of Oxford, as it is called, they enter the Ramapo Valley, and from there to Jersey City they need no help. At Port Jervis there are five pushers, at Goshen one, and at Greycourt two, each manned by gangs of two men, working alternately night and day. Altogether there are 18 gangs of men which are needed to assist these large engines, with their trains of 40 cars, and it might look to those who are not acquainted with the manner in which the business was formerly conducted that the road had gained nothing. But to show how deceptive are appearances, it is only necessary to present the other side of the case.

Formerly there were two classes of locomotives—four and six wheel connected—the former starting from this place with 16 cars and the latter with 18 and 20. They were not provided with pushers at any point with the exception of Oxford grade, where one pusher was kept. But it was the exception to use it. Arriving at Turner's, 42 miles distant from here, and 45 from Jersey City, the trains filled out with 10 cars, their trains from that point consisting of 26, 28, or 30 cars, as the case might be. To secure their complement of cars, it was necessary to have them transported there, and this was done by turning one-third of the gangs and sending them back to Port Jervis. No light or empty cars were to be secured, except such as were lying at way stations, and generally one or two engines were sufficient to do the work, and consequently eight out of ten came back empty, the gang of seven men taking it easy, generally all but the fireman going to sleep in the caboose, leaving him to run the engine and caboose to Port Jervis. For this they were paid at the rate of one day. Consequently, where it formerly took 30 engines to haul 600 cars over the road, it now only requires 15, assisted by the pushers stationed at the various points. Dividing the 16 additional pusher gangs, or 48 men, by 7, the number comprising an ordinary freight gang, gives about 7 full gangs, which, added to the 15 saved in the number of trains, makes 22, leaving a clear saving to the company of 8 gangs of men and 8 locomotives in hauling 600 cars from Port Jervis to Jersey City. In handling the traffic of the Erie, which ranges from 1,200 to 2,000 cars daily, the cost is correspondingly decreased as regards the pushers, as the same number is used for the greater traffic as for the less. In handling 1,200 cars, 16 gangs are dispensed with, and 1,800, 24 gangs. The time consumed in running between these points is not much lengthened. The experience thus gained resulted in the ordering of 10 more of these monster locomotives, which have just been placed upon the road.

Neither has the prophecy as to the discharge of employees on account of the extra cars they haul come true, as to-day there are as many gangs as formerly, and they make more time. In fact, new gangs have been added recently. This is in consequence of the increased traffic done by the company. It is asserted that if the company had not adopted these ponderous locomotives, or "iron mountains," as they are locally termed, it could not, with its increased traffic, so easily handle the number of cars it now does. To do it with the motive power it formerly employed would make necessary the construction of a third track.—*Port Jervis (N. Y.) Gazette*.

The Westinghouse Brake on the Central of New Jersey.

The Westinghouse Air Brake Co. has received an order to equip the trains of the New York & Philadelphia New Line with the automatic air brake. The Central of New Jersey, which owns the New York end of the line, has hitherto used the vacuum brake.

A School of Mechanics.

Mr. Theodore Scheffler, a Mechanical Engineer of long experience both in railroad shops and as chief draughtsman of several of the leading locomotive works in this country, is about to open a mechanical school in Paterson, N. J. The course will include mathematics, physics, theoretical and applied mechanics, drawing and construction of machinery, bridges, roofs, etc., illustrated by practical examples. Practical working in the shop will be an important part of the instruction. Mr. Scheffler's address is Washington Hall, Broadway, Paterson, N. J.

Diamond Cut Diamond.

Referring to the revival of speculation in France, the English journal *Money* has the following: "Visitors to Paris will remember the storé or market-place known as the 'Fauve Diable,' a sort of companion to the 'Bon Marché' which has blossomed within the last few weeks into a gigantic banking-house with a small army of spruce clerks replacing the former rather frowsy salesmen. Jay Gould, the American financier, when in Paris last month, was introduced to the promoter of this brand-new institution, with the view of finding a market for some of the many railroad securities of which he is said to be possessed. M. David, the promoter in question, whose rise in the financial world has been so rapid as to savor of a pantomime coup, expressed the utmost readiness to dispose of any number of Union Pacific shares or other miscellaneous contents of Gould's tin boxes, but said that his present bank was already fully occupied. 'Nothing, however,' he continued, 'will be easier than for us to start a *monstre* "Bancus" Americaine," which will take all your securities, and at the same time relieve Mr. Scott, President of the Pennsylvania Railroad, of all his Texas Pacific bonds which he cannot market. We will have a capital of 100,000,000 francs, of which you and your friends shall subscribe 50,000,000 in evidence of good faith.' At this point it is recorded that the negotiation, in which Gould had previously shown breathless interest, was abruptly concluded."



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EDITORIAL ANNOUNCEMENTS.

Passes.—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

Addresses.—Business letters should be addressed and drafts made payable to THE RAILROAD GAZETTE. Communications for the attention of the Editors should be addressed EDITOR RAILROAD GAZETTE.

Advertisements.—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

Contributions.—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particularly as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men, practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

A RECEIVER'S CREDIT.

A recent decision of the United States Circuit Court in New York indicates that manufacturers and dealers in railroad supplies have need to exercise more caution in filling a receiver's order than has usually been thought necessary. The general idea is that a receiver has superior credit; that whatever supplies or services he requires and contracts for in execution of his trust are of primary obligation, and entitled to priority of payment. The grounds of such a view are well established and understood. In all the ordinary cases of a receivership ordered for the sale of a railroad under foreclosure of mortgage or other winding-up of the affairs of an insolvent company, expenses must be incurred to a considerable extent in order to preserve the property until sale can be made. The franchises of the company are held upon condition of operating the road, and the receiver must perform this obligation to avoid a forfeiture. Repairs are just as necessary upon a road run by a receiver as upon any other, and if they are neglected the property may become valueless or be swallowed up in claims for damages. Public policy requires that the operation of the road shall be continued, and that this shall be done with the same fidelity and care as are required of roads run by directors in the interest of stockholders. The cost of services, supplies and repairs necessary in keeping the road in proper condition and operation, are, therefore, indispensably incurred to protect the property and realize its full value for the bondholders, and they, with all other creditors earlier than the receivership, may properly be required to submit that the property shall respond to these necessary charges of executing the trust before dividends are made among them.

And this view has had support from the decisions of the courts. There has not been a rule that receivers

must bring expenses of repair and running within current receipts during the receivership, so as to keep the value of the property undiminished for division among creditors; on the contrary the courts have in several cases recognized the propriety of their incurring charges upon the road above the amount of receipts and prior in payment to earlier debts. In a very complex and extended litigation, decided a few years ago in Alabama, and involving several roads, the general features of the case presented to the Supreme Court were that the Chancellor had given leave to receivers to negotiate several large loans and had ordered that these should be charged upon the property of the roads interested, prior to the mortgages on which the receivers were appointed. The object of some of these loans was to complete the construction of independent portions of the road; and the Supreme Court said that to give a loan designed for this purpose a priority was improper and exceeded the Chancellor's power; he could only provide for preserving and realizing the estate. But one of the loans was obtained for expenses of management and preservation of the property in its existing condition; and this loan the Court sustained and enforced as a first charge, saying that although such expenses ought to be defrayed from income if adequate, yet, if that was inadequate, they must fall upon the estate. In Kentucky, only about two years ago, a like doctrine was applied, in good degree, to wages of employees of the company concerned; another receiver was sustained in paying for services he had employed, out of the funds in his hands, before discharging the mortgage. And, last year, in the case of the Montclair & Greenwood Lake Railway Company, in New Jersey, the Chancellor applied the rule very distinctly to cost of ordinary repairs needed to keep the road in such order that it could be run with safety to the public. He said that such repairs were a necessary means of preserving the value; that it was incumbent on the Court to see that they were made; and that as the Receiver had not funds for the purpose, he might issue certificates of indebtedness, which should be the first lien. It is never claimed, indeed, that every debt incurred during a receivership has such priority, for it so happened that the receivers in the Alabama case above-mentioned sustained a judgment for damages suffered by a passenger while they were operating the road, and the United States Circuit Court said that this obligation did not share the priority accorded to the Receiver's engagements; it had nothing to do with preserving the property for the creditors. But debts which arise upon a receiver's contracts for supplies needed to preserve the road and franchises are, upon views which generally prevail, liable to be made a charge superior to the earlier mortgage.

The recent decision mentioned as suggesting exception to this view arose in the affairs of the New York & Oswego Midland Railroad. About six years ago receivers were appointed, who kept the road in operation until quite recently, when a sale was effected. Meantime Tillotson & Co., acting on the impression general among mercantile men, that supplies furnished to a receiver have a priority, filled the receivers' orders for various goods needed from time to time in running the road, and took ordinary notes from them as receivers, for the price. The order appointing the receivers limited them, in selling, to a price of two and a half millions or upward. When, however, the attempt to sell was made, this price could not be obtained; they were then allowed to sell at a lower price, and a much lower one was realized. The receivers, not being in receipt of funds to pay all the debts, declined to pay Tillotson & Co. in full; and those creditors petitioned the Court to recognize their priority and direct that their notes should be paid first. It then appeared that at the time when the receivership was constituted there were, as is usual, two sets of creditors—bondholders secured by a mortgage, and holders of floating claims for services and supplies; and that the order contained (as is not usual) a clause declaring that for all this floating debt the receivers might issue certificates, and that these "should be paid out of any moneys realized upon a foreclosure and sale equally with any other liabilities incurred by the receivers" in the operation of the road and protection of the estate. The receivers relied upon this clause as forbidding any priority of Tillotson & Co. over holders of their certificates. For Tillotson & Co. it was contended that they were not parties to the order, which was made before they furnished their goods, and therefore could not be bound by the special clause; that the clause was inserted upon an understanding that the property was worth and would not be sold for less than two and a half millions (enough for all claims), which was an entire mistake; and that in view of equity, the success-

ive receipts realized by the receivers were a trust fund to defray expenses of management, and if they were applied to pay the old floating debt, there had been a diversion of funds pledged to the petitioners, for which they were entitled to redress. The Court, however, denied the petition.

Until filing of a written opinion, it may be difficult to state the grounds with accuracy. The general reasons are understood to be that the special clause in the order justified the receivers in making payments according to its directions, and that, they having done so, it was impracticable, after making sale and the fund proving insufficient, to go back and reclaim what had been paid, and reinstate the supply men in their priority, conceding that they had one.

But the purpose for which we call attention to the case does not require any statement of reasons to support it. We mention it as a warning that merchants may not be safe in dealing with a receiver simply upon faith of his office. There may be a necessity to inquire into the terms of his appointment; and to ascertain not only what special clauses the order may contain, but also what later orders affecting his powers and duties may have been made.

A STANDARD CAR AND TENDER AXLE.

With this number of the *Railroad Gazette* a full-page engraving is given of the Master Car-Builders' standard axle. The reason for giving it at this time will be apparent if the history of the action of the Car Builders' and Master Mechanics' associations in relation to it is recapitulated.

The attention of the master car-builders was first called to the subject at their convention held in St. Louis in 1872, and a committee was then appointed to investigate and report on it. In 1873, at their meeting held in Boston, the whole subject was brought up again and fully discussed, the two principal questions being the length of axle from centre to centre of journals, and the length and diameter of journals, as these dimensions in a great measure determine the other proportions of the axle. After very full consideration at that meeting, it was determined to ask each member to state what size of journal he would prefer and if he saw proper to give his reasons therefor. The following is a summary of the replies which were then made:

1 member favored a.....	3 1/4 x 7 in. journal.
1 " " ".....	3 1/2 x 6 " "
3 " " ".....	3 1/2 x 6 1/4 " "
25 " " ".....	3 1/2 x 7 " "
1 " " ".....	3 3/4 x 6 " "
18 " " ".....	3 3/4 x 7 " "
1 " " ".....	3 3/4 x 8 " "
1 " " ".....	4 x 6 1/4 " "
1 " " ".....	4 x 8 " "

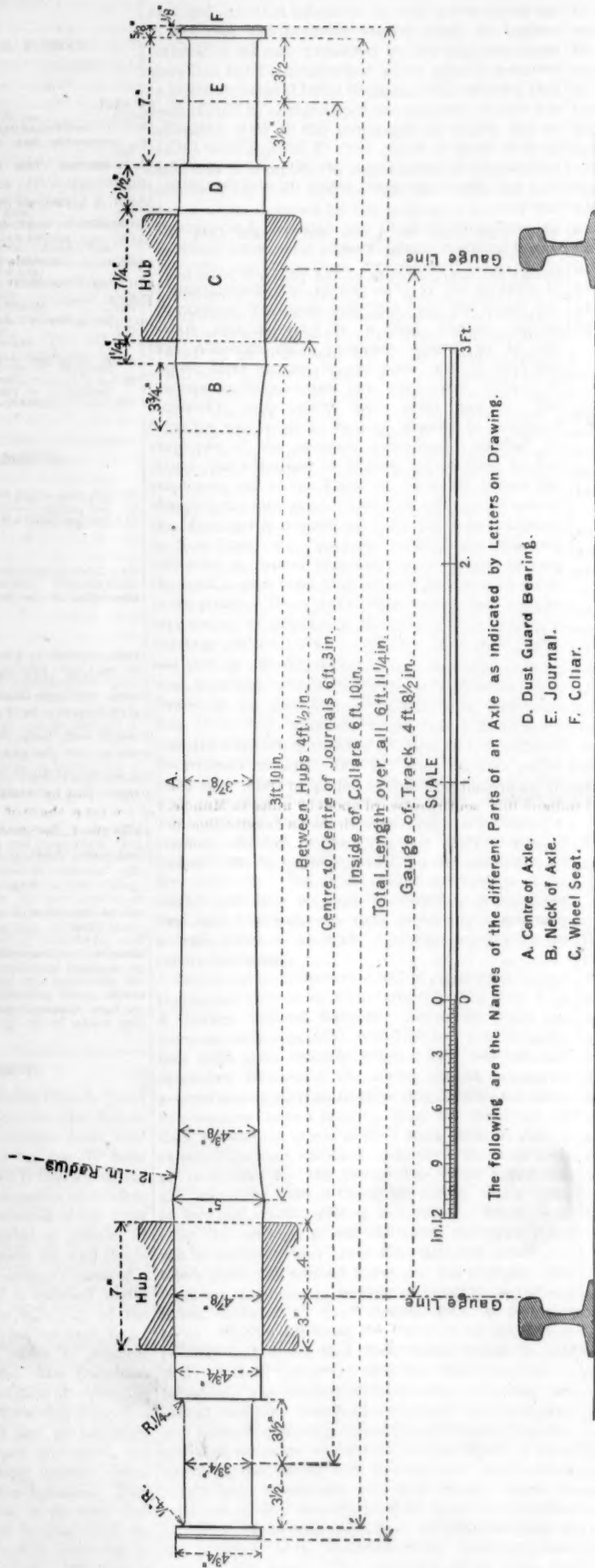
After the opinions of the members were given in this way, the Association quite naturally divided into two parties, the big-axle men and the little-axle men. The former were in favor of making the journal 4 in. in diameter and the latter either 3 3/4 or 3 1/2 in. After a good deal of discussion and some wrangling it was decided to make the length from centre to centre of journals 6 ft. 3 in., and after more discussion it was decided to make the standard journal 3 3/4 in. in diameter by 7 in. long, which was a compromise between the two parties. Although this decided the matter for the time, and the axle was afterward adopted as the standard on a number of different roads, yet there were afterward murmurings of discontent, and the little-axle men complained that they had been "bulldozed" and that a fair hearing had not been given to the whole question.

In the mean while the Master Mechanics' Association at its meeting held in 1873 at Chicago appointed a committee to investigate and present the subject at the next meeting. This Committee reported at the meeting held in New York in 1875. The Committee recommended the adoption of the Master Car-Builders' standard for car and tender axles. Unfortunately, just about this time steel manufacturers were doing all they could to call the attention of the officers of railroads to the merits of steel axles, and among the arguments used in their favor was that, steel being a stronger material than iron, axles made of it need not be so large or heavy as iron axles. Some of them therefore opposed the adoption of the Car-Builders' standard for that reason, with the result that the recommendation of the Committee was rejected by a vote of 23 for to 38 against.

At the meeting of the Car-Builders' Association, held in New York in 1876, one of the malcontents introduced a resolution during the last hours of the session, appointing a committee to reconsider the whole subject.

At the Master Mechanics' convention held in Richmond in 1878, the subject was called up again and discussed. This resulted in the appointment of a committee of five "to confer with the Master Car-Builders' Association, or any other parties, regarding the best

(Copies of this engraving, printed on stiff card-board, can be procured at the office of the Railroad Gazette.)



Weight of Axle, finished, 347 lbs.

MASTER CAR-BUILDERS' STANDARD-AXLE.

The engraving herewith of the Standard Car and Tender Axle, recommended by the Master Car-Builders' and Master Mechanics' associations, at their conventions, held in 1879, is hereby approved.

F. D. ADAMS, Boston & Albany Railroad.
M. N. FORNEY, Railroad Gazette.
JOHN KIRBY, Lake Shore & Mich. South. Ry.
S. A. DAVIS, Boston, Lowell & Nashua Railroad.

Committee of
Master Car-Builders'
Association.

H. L. COOPER, Ind., Bloomington & West. Ry.
J. M. BOON, Pittsburgh, Fort Wayne & Chicago Ry.
W. S. HUDSON, Rogers Locomotive Works.
M. N. FORNEY, Railroad Gazette.

Committee of
Master Mechanics'
Association.

form and proportions for standard car and tender axles; that committee to report to this Association at the next annual meeting." When the action of the Master Mechanics' Association, which meets in May, was announced to the car-builders, at their meeting in June, they very promptly gave their committee instructions similar to those given by the master mechanics, which action was followed by a joint meeting of the two committees in New York April 17, 1878. At this meeting the two committees were agreed about the longitudinal dimensions of the car-builders' axle, but there was some difference of opinion about the diameters. The Car-Builders' committee, therefore, adopted a resolution recommending *preferably* their own standard, but agreeing to concur with the master mechanics if they should decide in recommending an axle $\frac{1}{4}$ in. smaller in diameter all through. The Master Mechanics' committee made a full report, which was presented to the convention held in Cincinnati last May, and resulted in the passage of a resolution recommending the Master Car-Builders' axle as a standard for tenders and cars. At the meeting of the Car-Builders' Association, held in Chicago in June last, their previous action was reaffirmed *unanimously*, and the Committee was instructed to prepare a standard drawing and engraving of the axle. The one which is published with this number was made in accordance with those instructions, and has been submitted to the members of the two committees. As will be seen, they have all approved of the drawing, excepting the Chairman of the Master Mechanics' Committee, who objects to some of the proportions of the axle between the hubs of the wheels, and one member of the Car-Builders' Committee, who has not been heard from. It is to be regretted that the authorized engraving has not the unanimous approval of the committees, but it has so great a preponderance of authority in its favor that doubtless hereafter it will always be accepted as the *standard*. The reason for instructing the Committee to prepare a drawing was, that in the different engravings and drawings which have been made of it, slight differences have crept in so as to throw some doubt on their authority and accuracy.

So much has already been said in these pages why a standard axle should be generally adopted, that nothing new can be said on that branch of the subject. Uniform axles are the first step toward uniform trucks. Make the journals all the same size, and the journal-bearings will soon be made alike. The journal-boxes will also follow, and the truck frames can then be made of the same dimensions; but the first step is to have the axles alike.

The reasons for adopting the special dimensions of the Car-Builders' standard are set forth very concisely in the minority or rather supplementary report to the Master Mechanics' Association, which is reprinted here:

"It may be safely assumed that, twenty years ago, an axle with journals $3\frac{1}{4}$ in. in diameter and 6 in. long was regarded as the best or very good proportions for eight-wheeled cars weighing about 17,500 lbs. and intended to carry 20,000 lbs. of load. The breaking weight of this or any other journal may be determined by the following rule: Multiply 3,1416 by 50,000, and the product by the cube of its radius, and then divide by twice its length. Calculated by this rule, the weight required to break a journal of the above size would be 56,127 lbs. The total weight of such a loaded car would be 37,500 lbs., and the weight of the wheels and axles would be 5,000 lbs., so that the weight on each journal would be a little over 4,000 lbs., so that the breaking strength of this journal would be about *fourteen* times that of its load. This, as stated, was considered good practice 20 years ago. The bearing surface on such a journal, measured on the diameter, would be $3\frac{1}{4} \times 6 = 19\frac{1}{4}$ square inches, so that the journal carried a little over 200 lbs. per square inch.

"At present the practice is to build cars which weigh 20,000 lbs. and carry 30,000 lbs. of load. Deducting 5,500 for the weight of wheels and axles, and we would have the total weight of 44,500 lbs., or a little over 5,500 lbs. on each journal. If, then, we have the same margin of strength in the axles for the cars of the present day that we had twenty years ago, the journals should have a breaking strength of $5,500 \times 14 = 77,000$ lbs. A $3\frac{3}{4} \times 7$ in. journal would require 74,014 lbs. to break it, so that it has somewhat less margin of safety than the $3\frac{1}{4} \times 6$ in. journals had 20 years ago. Let us see about the surface: In the old cars, as was shown, there was a square inch of surface to each 200 lbs. of load, so that for a load of 5,500 lbs. we ought to have 27 square inches of surface. A $3\frac{3}{4} \times 7$ in. journal has only $26\frac{1}{4}$ square inches of effective bearing surface. We are therefore of the opinion that for the loads which are now carried the Master Car-Builders' standard journal is rather too small than too large, and consequently that it would be a great mistake to diminish it in size."

As this question has now been very definitely decided, it is to be hoped that managers and superintendents will see proper to introduce the standard axle on their lines. Of course all that can be expected is that it will be used for all new and reconstructed tenders and cars. No one is so wild as to advocate throwing away all old axles and replacing them with those of the new standard. It often happens, though, that there is a want of unanimity between the managers and subordinate officers. The superintendent of machinery or car-builder will

secretly or openly be in favor of its adoption, but is unwilling to advocate its use because that throws the responsibility on him; or it happens in some cases that for years past he has used axles of proportions different from the standard and is now hardly willing to admit that his advice on this subject is not as good now as it may have been heretofore. He therefore clings to his old practice, perhaps wishing at the same time that he was overruled by his superiors. In such, and in nearly all other cases, the simplest and most effective way to begin this much-needed reform is for the General Manager or Superintendent to issue an order that hereafter all new and reconstructed cars and tenders shall be built with standard axles. If this were done, a very few years would bring about uniformity where now there is so much and such annoying and expensive diversity.

A New Line from St. Louis and Kansas City to the East.

Among the developments of the past few years has been the tying together of separate roads, sometimes by constructing short connecting lines and sometimes without any new construction, so as to form new long or through lines. One of the most striking of these was the making of a new route between Pittsburgh and the East and Pittsburgh and the West, simply by the construction of 68 miles of new railroad. The combination of the Wabash with the St. Louis, Kansas City & Northern hardly belongs to this class, so far as making a line to Missouri River points is concerned, for both these roads always did form parts of such a line, and the change is simply in their relation to each other; but their union in connection with the extension to Omaha is such an instance, as it makes a new and additional line between Toledo and Omaha.

There is now on foot a project for a new line which resembles closely the Wabash line to Kansas City, which will be made by the construction of a very little new road, the utilization of two roads which heretofore have had no share of this traffic, and their connection with a third which has a line between Kansas City and Chicago, but, except by way of Chicago or St. Louis, none to the East.

This line will be made by extending the Lake Erie & Western Railroad (late the Lake Erie & Louisville) from its present terminus at Celina, in Ohio, near the Indiana line, southwestward about 50 miles to Muncie, Ind., where it will connect with the La Fayette, Bloomington & Muncie Railway, which extends thence nearly due west 200 miles to Bloomington, Ill., there connecting with the Chicago & Alton.

The Lake Erie & Western connects with the Lake Shore at Fremont, O., 30 miles southeast of Toledo, 83 miles west of Cleveland and 266 miles west of Buffalo. The distances to Kansas City from Buffalo by each section of this line are:

Lake Shore, Buffalo to Fremont.....	266 miles.
Lake Erie & Western, Fremont to Muncie (about).....	160 "
La Fayette, Muncie & Bloomington, Muncie to Bloomington.....	200 "
Chicago & Alton, Bloomington to Kansas City.....	361 "
Buffalo to Kansas City.....	967 "
Do. by Wabash via Hannibal.....	958 "
Do. by Bee Line via Cleveland and St. Louis.....	1,011 "
Buffalo to St. Louis:	
Via Fremont, Muncie and Bloomington.....	781 "
Via Toledo and the Wabash.....	732 "
Via Cleveland and Bee Line.....	729 "

The new line will thus be but little longer than the Wabash to Buffalo, or between the New York Central and Kansas City, and not a long one to St. Louis, especially if compared with that *via* Chicago or Joliet, by which a very large amount of traffic has always gone, and by which the distance between Buffalo and St. Louis is 778 to 823 miles long.

The through shipments from Missouri River points are now considerable and are growing, and to carry them, when destined to New York or New England, by way of Chicago, makes a somewhat circuitous route, and still more so to carry them by way of St. Louis if they are to be sent by way of the New York roads, and especially when sent by the Lake Shore, which is longer than the others. The Chicago & Alton carries either to Chicago or St. Louis, and by the new route it will have an intermediate connection which will be used doubtless for the through traffic which it interchanges with the Lake Shore. On this, however, it will have a haul of but 361 out of 1,427 miles to New York, while if the freight were transferred at Chicago, it would get 487 miles, but out of a total distance of 1,467 miles. Its exchanges with the Michigan Central are made chiefly at Joliet, and on these it gets 450 miles from Kansas City out of 1,410, and 245 $\frac{1}{2}$ out of 1,215 from St. Louis. It would not get any great advantage out of the arrangement, if it did not secure in this way a traffic that has heretofore gone by other routes. But heretofore the Chicago & Alton's exchanges with the Lake Shore have been slight. The latter has done its St. Louis and South-

western business chiefly through the Cleveland, Columbus, Cincinnati & Indianapolis and the Wabash. By the new arrangement the Chicago & Alton will get at least a part of this, while its interchanges with the Michigan Central may be as great as ever. By this arrangement it will be situated very much as the Wabash, St. Louis & Pacific will be, when its line to Chicago is completed, with outlets to St. Louis, to Chicago, and to the East by an intermediate route.

For some 225 miles from its junction with the Lake Shore, this new line will be just about half-way between the Wabash on the north and the Cleveland, Columbus, Cincinnati & Indianapolis on the south, and in general direction and the place which it will fill in the transportation system of the country it will be quite similar to these two roads. It will be, as far as Bloomington, Ill., substantially a branch of the Lake Shore & Michigan Southern, and will be controlled, we understand, in the interest of that road. The two roads which will form this part of the line have not been at all valuable properties; but for that very reason they have been acquired very cheaply. The Lake Erie & Western has been bankrupt two or three times, but it has, we believe, now no funded debt at all. It is, by the way, under the presidency of Hon. Charles Foster, who has just been elected Governor of Ohio. The La Fayette, Bloomington & Muncie was formed last spring to succeed two corporations which owned respectively the parts of the line east and west of La Fayette, then sold to satisfy mortgages. It, too, we believe, has no funded debt now, so that the line can be supported with small profits. The traffic which they will get by the establishment of this line over them will be a pure addition to what they have had heretofore, and will probably be a respectable share of the through business of St. Louis and the "Missouri River points." It should, however, be remembered that this latter traffic is not to be compared with the Chicago or even the St. Louis traffic, and that it is already pretty well divided, as a very large part of it stops for a market at Chicago or St. Louis, and so could not use this route at all. This is true generally of the cattle shipments, which are large from Kansas City, but go mostly to the Chicago or St. Louis stock-yards before final shipment to the East; while half the year the low lake rates attract the grain to Chicago strongly. The packing-house products can go by one route as well as another. But by working the line for St. Louis business, of course a share of what stops there can be secured, while the Lake Shore, we all know, has always had a good, solid share of the Chicago shipments.

The Jackson Disaster.

After the first shudder, caused by an accident like that which occurred last week at Jackson, Mich., has passed away, the most salutary thing which can be done is to inquire not only the cause but the means of preventing similar calamities in future. There can be no doubt that the primary cause of the collision of the wrecked train with the switching engine was a most inexcusable blunder of the yard-master, who no doubt is now one of the most wretched of men. Probably, though, he was led into some misapprehension regarding time by the somewhat indefinite information given him by the telegraph operator. Between these two, though, the blunder was perpetrated, and twenty-five or more persons met with a most horrible death.

Undoubtedly this should stimulate every railroad officer to greater vigilance, and should prompt an investigation of the rules governing employes at all similarly dangerous places. But, most important of all, it should lead to investigation to see whether the rules made and provided are obeyed. That there was the most criminal negligence in the part of the yard-men in obstructing the main track in front of an approaching train there seems to be little doubt.

But when the responsibility for this accident has been fixed on these two unhappy employes, all blame is not removed entirely from those above them. It is true that if these subordinates had not made the manifold fatal mistake they did, the lives of the victims would have been spared, but so far as the reports of the investigation have reached us, there are some questions which have not yet been answered.

If there is any one principle which is more constantly brought to the notice of a railroad manager than another it is the unreliability of employes. No tests have ever been discovered which will determine whether a man can always be depended on to obey orders. We can test a man's eyesight, and know whether he is color-blind, but no art has yet been devised by which we can know whether he is duty-blind. It is one of the inexorable risks which attend every train and the journeys of all travellers, and a railroad manager sleeps uneasily for fear some blunder-head will fail at a critical moment, and thus invite disaster, as the yard-master did at Jackson. This being the case, the

responsibility is not removed if the management of a railroad can show that some one did blunder. Knowing, as they must, that this risk is always present and the impossibility of entirely eliminating it, it becomes their duty to provide every possible means which will help to avoid the consequences of carelessness, stupidity, misunderstanding, wilfulness or insubordination in employes. Now, was such provision made at Jackson?

At the coroner's inquest Mr. Philip Reith, Civil Engineer, submitted a plan of the road at the place where the accident occurred, and adjacent thereto, and testified that "from the point of collision a train can be seen east a distance of 1,828 feet where the curve commences."

William A. Girard, fireman of the switching engine, testified that "the lamp on the switch can be seen nearly half a mile down the track. If it was set so that the main track was open it would show a white light, otherwise it would show a red light. The engineer of the Pacific express ought to have noticed by this light that the switch was set for a side track in time to have stopped his train, unless he was prevented by the fog from seeing it. On account of the fog he may have mistaken the head-light of our engine for the switch light."

Mr. Lothrop, counsel for the railroad company, stated that "the Pacific express had 14 cars at the time of the accident. * * * Supposing the express was running 30 miles an hour, it would probably have been stopped within about 1,400 feet, or twice the train length."

Now why was the train not stopped? We are told that it was equipped with the old Westinghouse atmospheric brake. Was this in an efficient condition? If so, and the engineer of the Pacific express saw the switch-signal from the time when it should first be visible, the train could have been stopped in time, to avoid accident or at least serious injury. If the switch light was obscured by fog, then a distance signal, 1,200 or 1,500 feet east of the switch, would have been seen in time.

There is another question which should also be answered; is the old form of the Westinghouse-brake the most efficient system in use? If there is a better, why does the Michigan Central Railroad not use it?

The conclusion, therefore, seems irresistible, that a distance signal connected with the switch, and an efficient brake would have prevented this accident, after the yard-master committed his terrible mistake, and that too, even if the engineer was violating the rules by running through the yard at a higher rate of speed than that prescribed.

It is, of course, possible that neither the engineer nor the firemen of the wrecked train were looking out for signals. As they were both killed, no light will perhaps ever be shed on this point, but even if this were true, it would still remain, that if a distance signal had been used the attention of the engineer would have been more likely to be attracted to the signals than it would be without.

A main-line switch in a yard with a great network of tracks alongside of it is a very exposed and dangerous point, and it would seem to be the part of prudence to provide some means by which approaching trains can be warned in time of the position of the switch. This can be done at comparatively little cost by using a distance signal worked by a wire rope. By adopting such safe-guards, so that loco motive runners may know in advance the position of the switch and then providing the most effective means known for stopping trains, the risk of accidents like that at Jackson would be very greatly diminished. Of course the primary cause must not be lost sight of, but after all is done that can be to eliminate danger from such sources, human fallibility still remains, and it is to supplement this that devices like distance and interlocking signals and continuous train-brakes must be used.

It is safe to predict that on other roads on which long and heavy trains are run at high speeds without efficient brakes and signals that accidents similar to that at Jackson will happen. The necessity for stopping a train when running at a high speed as quickly as possible, to avoid such lamentable accidents, is always liable to occur, and a management which fails to provide the best appliances for that purpose cannot shake off the responsibility which rests on their shoulders by showing that some one else has made a mistake. If disasters do occur from this cause, but which *would have been prevented* if an efficient system of signals and the best means in use for arresting the motion of trains had been employed, who will be responsible for the sacrifice of life?

Foreign Railroad Notes.

There is now a movement in France toward the acquisition of the railroad system of one of the six great compa-

nies by the government. A year or two ago the government bought several bankrupt roads, most of which were not yet completed, and made a small state system of them. These came in contact with the lines of the Orleans Company, in whose territory they were mainly. The result of their operation has not been very favorable (they were not expected to be profitable), and one of the obstacles to making them profitable is said to be the competition of the Orleans Company. Now a committee of the Chamber of Deputies has reported in favor of acquiring this company's lines, and M. Freycinet, the Minister of Public Works, agrees with the committee. There will not need to be any preliminary negotiation, for the charters of the companies all state on what terms the government may acquire the roads. It is to pay the interest on the bonds and a dividend equal to the average earned by the company for a series of years previous to the purchase. As in this way the proprietors will get the equivalent of a government bond for their stock, the movement is likely to become popular with them. Imagine the United States taking the Rock Island or the New York Central and guaranteeing the average dividends of the past five years! The stock would probably bring more than 200—unless the government should go too largely into that business, in which case it is not likely that its credit would keep up, and its promises to pay be so highly valued.

The Journal of the German Railroad Union discusses the report of the Pennsylvania Railroad and compares the results with those of the Prussian railroads, generally greatly to the advantage of the Pennsylvania. It finds that the receipt per ton per mile was only half as great on the Pennsylvania as on the Prussian roads in 1878, and expense 52 per cent. less; the passenger rate was 40 per cent. lower on the Prussian roads. The cost of maintenance of road was about 40 per cent. less per mile on the Prussian roads, the locomotive repairs per mile run were a third less on the Pennsylvania, and the average mileage of locomotives was two-thirds greater on that road—18,807 miles against 11,242. The Prussian roads used 34½ per cent. more coal per ton moved one mile.

The average earnings per mile of road of the railroads of Switzerland in 1878 were \$6,570, which is about as much as the average American road earns; but unfortunately the Swiss railroads have a capital of about \$77,000 per mile, and ours some \$25,000 less. The Swiss roads do not pay; they are in a very bad way.

The Imperial Railroad Bureau of the German Empire has recently published a statement of the results of the examination of German railroad employes for color-blindness. No less than 85,996 men have been examined; 537 were found color blind—0.62 per cent., or one out of 160. One in 250 of the station men, one in 169 of the switchmen, one in 188 of the enginemen and firemen, and one in 189 of the conductors and baggagemen were pronounced color-blind. The greater number were examined with the Stelling tablets, but part with colored yarn, by the Holmgren method, and some in other ways. The proportion found color-blind is smaller than had been expected.

A standard section for steel rails to be supplied to the Prussian state railroads has recently been adopted which is very like the form recommended by the special committee of the American Society of Civil Engineers a few years ago, and now, with slight modifications, used on very many American roads, such as the Erie, the Atlantic & Great Western, the Lake Shore, etc. The Prussian section has a height of 130 millimetres (5.2 in.) for ordinary service, but is made 3 millimetres higher where unusual wear is expected. The base is only 110 millimetres (4.4 in.) wide, and the thickness of the web is 11 millimetres (0.44 in.). We find the limit of wear permissible marked at only 10 millimetres (0.4 in.) from the top of the head of the lower section, which is about one-third of the depth of the head.

In 1877 the German Railroad Union announced that it would award nine prizes of from \$375 to \$1,875, amounting in all to \$7,500, for inventions of improvements made from 1872 to 1878 of the following three classes, viz., railroad construction and apparatus used in construction; railroad equipment and its management; and railroad administration and statistics, or for important railroad publications. There were 32 competitors for prizes—three in the first, 17 in the second and 12 in the third group. In the first group a first prize (\$1,875) was given for the Serres & Battig iron superstructure, and a third prize (\$375) for a switch apparatus, invented by Blanel, of Breslau, which does not break the main track. In the second group a second prize of \$750 for a railroad freight-car fastening, invented by Thomer and Köhazy, of Kaschau, and a third prize of \$375 to Klose, a Swiss Superintendent of Motive Power, for a speed-recorder for locomotives. In the third group the only prize given was a third prize of \$375 for a commentary on a criminal law of the Empire which applies to railroad men.

There was a celebration, Sept. 21, of the opening of the first section of a new metre-gauge railroad in northern France, which has been built by the land-owners and manufacturers along the line. It is 19¼ miles long, with a maximum grade of 105 ft. per mile, laid with steel rails weighing 40 lbs. per yard, on oak and pine ties 5 ft. 8 in. × 4½ in. × 6 in. The ground first cost \$60,000. The locomotives weigh 39,600 lbs. The coal cars carry 17,600 lbs. The entire cost was at the rate of \$20,000 per mile, which is thought very cheap there.

The French railroads during the first half of 1879 earned the average amount of \$32.81 per mile per day, exactly the same as in 1878. This is \$5,980 per mile for the half year. What is called the "old system," including all the main lines (44 per cent. of the whole mileage), earned \$10,120 per mile; the "new system," also 44 per cent. of the whole, only \$2,990; the "special system," \$6,900 per

mile; the "State system," (993 miles), \$1,210, and "various companies," (612 miles), \$1,935 per mile. There were 445 miles of new railroad opened during the year, making the total at the end of last June 13,794 miles.

The Italian government has undertaken a vast work of new railroad construction, and has appointed a commission to report upon the most economical method of construction and operation. This commission is composed of Commander P. Valsecchi, Director General of Railroads at the Ministry of Public Works, President; Commander C. Pongo, Commander A. Ferucci, Chevalier G. Borguini, Commander G. Imperatori, all civil engineer inspectors; Colonel Corvetto, of the Ministry of War; Commander Giordano, inspector of mines, of the Ministry of Agriculture, Manufactures and Commerce; Commander Lavino, of the Southern Railroads; Chevalier Agazzi, of the Roman Railroads; Chevalier Mantegazza, of the Upper Italian Railroads, and the engineers Rivera, Soldati and Olivieri. Copies of the reports of the narrow-gauge conventions, and circulars showing the vast economy caused by the use of sundry valves, fire-boxes, wheels, forms of rail, car couplings, and car gear, may be directed to these gentlemen at Rome, charges prepaid.

The Late William Wirt Dechert.

News has recently been received of the death of Mr. W. W. Dechert, a civil engineer who was well-known in New York and its vicinity, as he had resided for a number of years at Fordham, which is now a suburb of the city. He left New York in July to take charge of a new railroad now being constructed at Porto Rico. On the second of September, he left San Juan, on that island, to visit a sugar estate, about twenty miles beyond. On his return, he tried to ford the River Louiza on horseback, and was drowned in the attempt.

Mr. Dechert was born in Reading, Pa., on the 7th of May, 1834. His father, Mr. Elijah Dechert, was a prominent lawyer in Reading. His mother was a daughter of Robert Porter, a brother of ex-Governor Porter, of Pennsylvania, and for many years a presiding judge of Lehigh and Berks district.

Mr. Dechert commenced his professional career at the early age of fifteen with Mr. Richard Osborn, then an engineer on the Catawissa Railroad in the mountains of Pennsylvania. About 1852 he went to the East Pennsylvania Railroad under Mr. Evelyn Lyons, who afterward died in Mexico from the effects of wounds received from guerrillas on the Vera Cruz Railroad, of which he was then Chief Engineer. In 1853 he again returned to the employ of Mr. Osborn on the Camden & Atlantic Railroad, and in 1855 he was employed on the Camden & Cape May Railroad under General Cook. In 1856, when Mr. Dechert was only twenty-two years old, he was appointed by Mr. Edwin A. Stevens to the position of Vice-President of the Camden & Amboy Railroad, which position he held for a year and a half. He then joined Colonel Talcott, who was at that time Engineer of the Mexican Railroad from Vera Cruz to the City of Mexico, and on which it is said there is some of the most difficult engineering work in the world. In 1858 he left Mexico on account of one of the numerous revolutions with which that unhappy country is afflicted, and came to New York. In the early part of that year he was employed in laying out the upper part of Central Park, which was then in process of construction, or rather adornment. Soon after he received an appointment from Col. M. O. Davidson, who was then engaged in engineering work in Cuba. While in Cuba Mr. Dechert located the Giza & Santa Spiritus Railroad on the south side of the island, and was also engaged a part of the time on the Havana Railroad. He left Cuba in 1861 and went to Honduras, where he remained for nearly two years, and located a line of railroad for the government. Afterward he was engaged under Colonel Davidson again, and then returned to this country, when he was employed for a short time in charge of lead mines in the northern part of the state of New York. In 1863 he again returned to Mexico under Mr. Lyons, and was made Principal Assistant Engineer of the Mexican Railroad from Vera Cruz to Orizaba, and was made Chief Engineer on Mr. Lyons' death, but on account of failing health he was obliged to resign the position and come North. In 1865, when the Imperial Mexican Railway was organized by Englishmen and Mexicans, he again returned to Mexico, under Mr. Wm. J. Lloyd, and was placed in charge of several of the divisions of that road south of Orizaba, on one of which is the celebrated bridge across the ravine of the Metlac, which is 375 feet above the bed of the stream.

While in Mexico Mr. Dechert was brought into frequent communication with the unfortunate Emperor Maximilian, Marshal Bazaine and Captain Noaty, who was in command of the Austrian frigate which was waiting at Vera Cruz to convey Maximilian away from Mexico. Mr. Dechert's reminiscences of that eventful period were of the most thrilling interest, and although the officers of the railroad endeavored to maintain a neutral attitude toward the rival governments, yet the transportation of troops and supplies brought them into frequent official intercourse with those in command of the French army of occupation. When the Imperialists left Orizaba there was great confusion and every prospect of a relapse into a state of general anarchy. Mr. Dechert, with about thirty others, formed a vigilance party and rode around the city all night endeavoring to allay popular discontent and excitement. After the death of Maximilian, the unsettled condition of the country led him to remove his family from Mexico, and he then returned to New York.

Since then he resided in Fordham, and was employed on a number of projected improvements in that section of the city, and on other work about New York. As already mentioned, he went to Porto Rico in July last, where he met with his sad death on the 3d of September. He leaves a wife and several children, to whom, and to many of those who have been associated with him, his untimely death will be a great sorrow.

Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

Kansas Pacific.—The track on the *Junction City & Ft. Kearney Branch* has been extended from Clyde, Kan., to Lawrenceburg, 9 miles. The *Solomon Branch* has been extended from Minneapolis, Kan., to Delphos, 10 miles.

Chicago, Bellevue, Cascade & Western.—Track laid from Bellevue, Ia., west to La Motte, 12 miles. Gauge, 3 ft.

Evansville & Terre Haute.—Track laid on the *Owensville Branch* from Junction west to Owensville, Ind., 6 miles.

St. Louis & San Francisco.—Track laid on the extension of the *Kansas Division* from Oswego, Kan., west by north to Cherryvale, 28 miles.

Kansas City, Lawrence & Southern.—The track on the *Southern Kansas Branch* is extended from Independence, Kan., west by north to Elk Falls, 30 miles.

Indianapolis, Decatur & Springfield.—Extended from Guion, Ind., eastward 15 miles.

St. Paul, Minneapolis & Manitoba.—The track on the *Branch Line* has been extended from Alexandria, Minn., northwest to Dumell, 25 miles.

St. Louis, Kansas City & Northern.—Extended from Harlem, Mo., to the Kansas City bridge, 8 miles. The *Omaha Extension* is completed by laying track between Malvern, Ia., and the Missouri line, 36 miles.

This is a total of 179 miles of new railroad, making 2,507 miles thus far this year, against 1,422 miles reported for the corresponding period in 1878, 1,548 in 1877, 1,740 in 1876, 903 in 1875, 1,180 in 1874, 2,807 in 1873 and 5,147 in 1872.

THE ROBBERY OF THE CHICAGO & ALTON TRAIN is a repetition of a crime which used to be thought impossible on railroads, but has been so common of late years in the West, and that in well-peopled districts where law and order generally prevail, as to justify special precautions to prevent it and to make it too dangerous to the robbers to be continued. One of the most effective means will be the energetic, persistent pursuit of the criminals. In this case the railroad company has shown itself to be in earnest by offering the large reward of \$15,000 for the arrest of the criminals or \$1,000 for any one of them, and the express company has also offered a reward of \$2,500. It is to be hoped that the pursuit will be followed up, however long it may take. How effective determination and persistence may be has been well shown by the conduct of President F. B. Gowen in the prosecution of the Molly Maguires in Pennsylvania, which has resulted, we believe, in the hanging of nearly every one of the criminals, and in freeing the community of one of the direst evils that ever has threatened it. The state of Pennsylvania can never be sufficiently grateful to Mr. Gowen for this great work, and his example is well worth imitating in the matter of these train robberies; which will come to an end as soon as it is made manifest that punishment is almost inevitable, that the pursuit will not be merely a temporary affair, to cease if unsuccessful within a few months, but to continue indefinitely, until the criminals are caught, so that they may know that as long as they live there will always be some one on their track. As we have suggested before, this is a matter in which it is proper that the railroads should co-operate. The gang that robbed the Chicago & Alton train threatens every train west of the Mississippi, and its escape will encourage other gangs to make similar attacks. It is true that this is a matter which concerns the whole community, and not the railroads alone; but then we know that the community will not take it up with the requisite vigor and persistence. It has not the machinery for so doing and its agents have no sufficient motive to engage them in a pursuit which may last longer than their terms of office. It will pay to spend a good deal of money in such a case, and if it is spent it will have to come from the railroads.

THE GREAT WESTERN MEETING held in London on the 2d inst. to vote on the policy of the directors concerning a fusion with the Grand Trunk resulted in an overwhelming victory for the board, the proxies being 20 to 1 in favor of adopting their report against such a fusion, though to judge from the English newspapers one might have supposed that the weight of opinion among the stockholders was just the other way. Colonel Grey, the new President, made a long speech, but did not give any account of the negotiations entered into with the Vanderbilt roads further than to say that important negotiations were pending, the result of which would be submitted to the stockholders at an adjourned regular meeting Dec. 11, after his return from America, and also that a connection with the Wabash would be secured. The directors wanted the indorsement of the stockholders in order to give the American boards with which they are negotiating confidence in them. No one would care to make an agreement with the Great Western in October when it might be consolidated with the Grand Trunk by vote of the stockholders in November. But with this vote indorsing them it becomes all but certain that the arrangements which they may make in this country during their present visit will be confirmed, if they need the confirmation of the stockholders.

At this meeting the late President, Hon. H. C. E. Childers,

for the first time gave the reason for his resignation. He had always been opposed to a fusion with the Grand Trunk on any terms proposed, but this time he thought that some effort should be made to come to terms. But in this opinion he found himself absolutely alone in the board. He did not wish to leave the board when he resigned the presidency, but found that under the Canadian law he could not resign from the presidency otherwise. He greatly deprecated any agitation to force a policy upon the directors, however, and under the circumstances favored sustaining the board which he had left, saying that he knew the negotiations which they had undertaken were of vast importance.

LAKE RATES have advanced since last week, and since Sunday have been 7½ cents a bushel for corn and 8 for wheat from Chicago and Milwaukee to Buffalo. These are extraordinary rates for these times. The highest rates reached in 1878 were 6 for corn and 6½ for wheat, and that only in the very last week of navigation, before that having been not more than 4½ and 5. In 1877 the highest lake rates were 5½ and 6, and this was in the second week of October; afterward rates were lower. In 1876 4½ and 5 were the highest rates reached, also in October. The advance was promoted last week by the advance in rail rates that took effect last Monday, doubtless; but then the rail rates were just as high in each of the two previous years.

Canal rates did not profit at all by the advance in rail rates, and until Wednesday have remained at 7½ for wheat and 6½ for corn from Buffalo to New York, rising Wednesday to 8 and 7. At the close of the week it cost about 17½ cents to have a bushel of wheat carried from Chicago to New York by lake and canal, the rail rate being 21 cents.

Ocean rates have fluctuated slightly during the week, but remain high compared with the figures of the past few years. The latest quotations are 9d. per bushel for grain by steam from New York to Liverpool, 3s. 3d. up to 4s. per barrel for flour, ½d. per pound for cotton, 70s. per ton for butter and cheese, and all the way from 37s. 6d. to 57s. 6d. per ton for provisions. The highest rates are asked by the steamers of regular lines which make quick passages, and, when there is a pressure of freight, usually take the most desirable freights, leaving the coarser products to freight steamers and sailing vessels. Rates on cotton from New Orleans last Tuesday were reported at ½d. by steam and ¾d. by sail, or about the same as from New York, which we do not remember ever to have seen before. Rates by sail, which we have not quoted for a long time, do not appear to have advanced in proportion to steamer rates. Tuesday charters to Cork for orders were made from New York at 6s. 6d. per quarter, or 9½d. per bushel; from Philadelphia at 5s. 6d., and from Baltimore for 6s. 1½d. and 6s. 3d.

General Railroad News.

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings will be held as follows:

Manhattan, annual meeting, at the office in New York, Nov. 12. Transfer books close Oct. 11.

Hannibal & St. Joseph, annual meeting, at the office in Hannibal, Mo., Nov. 3, at 10 a. m. Transfer books closed Sept. 29.

Wabash, Kansas City & Pacific, meeting to elect directors and complete the organization of the consolidated company, in Toledo, O., Nov. 7.

Dividends.

Dividends have been declared as follows:

Burlington & Missouri River in Nebraska, 2 per cent., quarterly, payable Nov. 1.

Republican Valley (leased to Burlington & Missouri River in Nebraska), 2 per cent., quarterly, payable Nov. 1.

Panama, 4 per cent., quarterly, payable Nov. 1. This is an increase, 3 per cent. having been the usual quarterly dividend.

Profile & Franconia Notch, 4 per cent., from this season's earnings. This is a good dividend for the first season of a new road, which must make all its earnings in three months of the year.

Mail Service Extensions.

Mail service has been ordered over railroad lines as follows:

Louisville & Nashville.—Service ordered over *Cumberland & Ohio Branch* from Lebanon, Ky., by Spurlington to Campbellsville, 19.75 miles, from Oct. 15.

Denison & Pacific.—Service ordered from Denison, Tex., by Pottsboro to Whitesboro, 25.64 miles, to date from March 19, 1879.

Foreclosure Sales.

The *Springfield, Jackson & Pomeroy* road was sold in Springfield, O., Oct. 1, under foreclosure of mortgage, and bought by Gen. Thomas, of Columbus, O., for \$443,000. The purchase was on account of the Columbus Rolling Mill Company, to protect its claim for iron furnished. The road extends from Springfield, O., to Jackson, 108 miles, with a branch from Jackson, O., to Eureka, 5 miles. The company owned 103 miles of the main line, leasing the use of five miles, from Washington Court House west, from the Dayton & Southeastern. The bonded debt was \$900,000.

The *Cincinnati, Wabash & Michigan* road will be sold at Wabash, Ind., Nov. 5, by J. H. Wade and Amasa Stone, trustees under the first mortgage. The bonded debt is \$2,000,000; the road extends from Goshen, Ind., southward to Anderson, 110 miles. It has been operated by the trustees for some time.

Railway Passenger and Freight Conductors' Mutual Aid and Benefit Association.

The annual convention of this Association was held at the Tremont House, Chicago, Oct. 8. About 75 delegates were present, representing 172 divisions of the order. Mr. Robert Laughlin, of the Chicago & Lake Huron, presided, and Mr. L. D. Latham delivered the annual address.

The General Secretary and Treasurer, Mr. C. Huntington, reported that during the past year the sum of \$27,238 was paid out for death and disability claims, and that at the close of the year there was \$4,662.56 in the treasury. Since the organization of the Association the amounts paid out to

members have been: 1876, \$2,178; 1877, \$12,296; 1878, \$31,915; 1879, \$27,238; total, \$63,627. The number of members now on the roll is 1,304.

A committee was appointed to report a revised constitution and by-laws.

At the second day's session, Oct. 9, the morning was occupied in discussing the report of the Committee on Revision of the Constitution. It was decided to hold the annual convention hereafter in November, instead of October. It was also decided to make the full assessment of \$2.50 per member, as for a death, hereafter for any member who should be so injured as to disable him permanently from following any trade or profession by which he could earn a living.

After reflecting the old officers for the ensuing year, the Convention adjourned.

A Railroad Quarantine Convention.

Mr. James C. Clarke, Vice-President and General Manager of the Chicago, St. Louis & New Orleans, has issued the following circular in relation to the convention of railroad managers proposed by him in a former circular:

"Thirty-one responses have been made by railroad officials to the circular issued on the 6th of August requesting a meeting of the railroads, with a view of petitioning the National Congress to make provision for the appointment of a national board of health, to whom shall be delegated the power of adopting and putting in force quarantine rules and regulations affecting interstate commerce, passengers and merchandise transported on railroads to and from any point where contagious or infectious disease may exist.

"The object of this movement is to secure uniform rules and regulations that will give the greatest protection by affording reliable means to arrest the spread of infectious or contagious disease, while at the same time providing for the movements of freights and passengers with the least inconvenience compatible with safety to the public health.

"In the communications received from the several railroads, the places designated for holding such convention or conference are proportionately as follows: St. Louis, 8; Nashville, 14; Atlanta, 4; Louisville, 2; Cincinnati, 1; Chicago, 1; Washington, 1. Therefore, in obedience to what seems to be the expressed wish of the majority, I respectfully name Nashville, Tenn., as the place for holding such meeting, to be convened on Wednesday, the 19th day of November, 1879.

"All railway managers who take an interest in this matter are respectfully invited to attend; and, with a view to accomplish the purpose sought, they are requested to prepare in the meantime for submission to the conference such suggestions as they may think proper to make."

Committee on East-bound Classification.

The committee appointed at the last meeting of the Joint Executive Committee in New York (Sept. 23), to which was referred the subject of the revision of the classification of east-bound freight, considering the subject to require greater consideration than they could give it at that time, appointed a special meeting of their own at the Grand Hotel in Cincinnati, Sept. 30. The committee was organized by choosing F. H. Kingsbury, of the Pittsburgh, Cincinnati & St. Louis, Chairman, and W. S. Spiers, of the Toledo, Peoria & Warsaw, Secretary. At the Cincinnati meeting the eleven members of the committee were present or represented, viz: The Chairman and Secretary above-named, and H. W. Hibbard, Vandalia Line; R. M. Fraser, Marietta & Cincinnati; J. A. Grier, Michigan Central; R. W. Geiger, Jeffersonville, Madison & Indianapolis; G. G. Cochran, Atlantic & Great Western, and C. L. Cole, representing Wm. Stewart, of the Pennsylvania Company; C. M. Wicker, representing M. H. Smith, of the Baltimore & Ohio; G. H. Vaillant, representing J. T. R. McKay, of the Lake Shore & Michigan Southern, and J. M. Osborn, of the Wabash, representing J. C. Noyes, of the Indianapolis & St. Louis.

J. J. Archer, of the Scioto Valley Railroad; J. M. Culp, of the Louisville & Nashville, and H. C. Diehl, of the Indiana, Bloomington & Western, were invited to sit with the committee.

The committee held sessions for discussing and amending the classification Sept. 30, Oct. 1 and Oct. 2, finishing the revision of the classification the last-named day.

A resolution was at one time adopted declaring that when articles are classed as being five cents or any other amount above or below a class rate, the amount should be added to or deducted from the rate from all points, but it was afterwards reconsidered and lost.

The committee then appointed Messrs. Kingsbury, Cochran and Fraser a sub-committee to revise and arrange its work, prepare it for the printer, and send copies to the Chairman of the Joint Executive Committee, with a request that the revised classification be adopted, if possible, previous to the next proposed advance in rates.

Southern Time Convention.

The Southern Time Convention met in Baltimore, Oct. 15, to arrange the winter schedule. Thirty roads were represented, all in the South except the Pennsylvania Railroad. R. R. Bridges, of the Wilmington & Weldon and the Wilmington, Columbia & Augusta railroads was in the chair, and W. F. Allen, of the *Traveler's Official Guide*, was Secretary. Changes were made in the night trains going north from Washington to 9:45, instead of 10:15 p. m., and in the morning going South from Washington to 7 o'clock, instead of 6:50. These changes go into effect on Nov. 9. A communication was presented from the Baltimore papers with reference to a 3:20 a. m. train going north, but no action was taken. A paper relating to a national quarantine was also read, but no action was taken on it, as there will be a meeting at Nashville, on Oct. 19, to consider that subject. The meeting adjourned to assemble in New York on the third Wednesday of April, 1880.

General Time Convention.

The General Time Convention assembled at the Windsor Hotel, New York, Oct. 9. Mr. F. N. Finney, of the Wisconsin Central, presided, and Mr. W. F. Allen, of the *Official Guide*, acted as Secretary.

The proceedings were very short. It was agreed to make no change in the through schedules, but to allow the usual changes to local points. Such local changes as may be made will take effect Nov. 9.

It was decided to hold the spring meeting in Chicago on the second Wednesday in April, 1880. The Convention then adjourned.

Order of Railroad Conductors.

The programme for the meeting and the excursions, etc., of this order, as given last week, was fully carried out, and the excursions were fully appreciated and much enjoyed.

On Sunday morning, Oct. 12, the delegates attended Plymouth Church, Brooklyn, in a body, about 150 being present, and Mr. Beecher referred to them previous to the sermon. "In the providence of God," he said, "we have with us a number of members of a brotherhood composed of the conductors of the principal steam railroads in the United States. The rendering of honor to those that deserve honor is an explicit command of the Bible, and while we do not forget it in regard to rulers, yet society is full of persons to whom all honor is due and much gratitude, and who do not receive it. There is nobody to whom less credit is given and

by whom more is deserved than the conductors and engineers on our railroads. The safety of millions of lives is in their hands. They carry a continent of people. And yet, it is notorious as a matter of statistics that it is safer to life and limb to travel than to stay at home. We are a traveling people, and such are the fidelity and carefulness of our conductors and engineers in the management of their trains that, while there is here and there a great misfortune, there is an average of safety, comfort and ease. Few men have traveled more than I have, or have noticed more how the conductors perform their duties. We remember them when we have to find fault, but forget them at other times. It gives me great pleasure to testify to their honorable position and great service. In what other land could a woman travel unprotected? Here she can go from the remotest bounds of Maine to the farthest part of Oregon, and receive uniform courtesy, kindness, direction and personal helpfulness. It is characteristic, national. It belongs to the brotherhood of professional conductors. Their presence here should be met not only by our hospitality, but by our sympathy and our honoring regard. And may they who make us not to err on the straight and narrow way not fail themselves! May they find that other straight and narrow way that leadeth unto life and rest in Heaven!"

The Southern Railway & Steamship Association.

The following circular from the President is dated Oct. 13:

"As the fair of the North Georgia Stock & Fair Association is held at Atlanta on the week embracing the 22d of this month, and as I am informed by the hotel-keepers that they will not be able, on account of the great press during the fair, to afford comfortable accommodations to railroad officials and the Convention on the 22d, I have thought proper, on the application of part of the members of the Convention, to postpone the meeting of the Convention of the Southern Railway & Steamship Association until Wednesday, the 5th day of November next, and it will stand adjourned accordingly."

ELECTIONS AND APPOINTMENTS.

American Society of Civil Engineers.—Additions to the Society, noted in the September transactions, are as follows: James H. Cunningham, Engineer, and proprietor of the Milwaukee Bridge and Iron Works; Frederick N. Finney, General Manager Wisconsin Central Railroad, Milwaukee; Col. Henry G. Prout, No. 12 Barclay street, New York (promoted from Associate); John M. Titlow, Assistant Engineer Department of Surveys, Philadelphia.

Atchison & Nebraska.—Mr. B. L. Winchell is appointed Assistant General Passenger and Ticket Agent, to date from Oct. 6.

Baltimore & Ohio.—Mr. Arthur Sinsil has been appointed Assistant Master of Road of the Main Stem and branches, from Cumberland west to the Ohio River. He has been in the company's service for 20 years.

Bellair & Southwestern.—At the annual meeting in Bellair, O., Oct. 9, the following directors were chosen: A. W. Anderson, Alexander Armstrong, Wm. M. Armstrong, Wm. G. Barnard, A. H. Caldwell, A. B. Covert, Jacob Heatherington, George Henry, W. Hoefler, John Keyser, Henry Miller, S. L. Mooney, W. T. Morris, A. F. Tallman, C. Weber. The board reflected S. L. Mooney, President; A. W. Anderson, Secretary and Treasurer; John Hart, Superintendent. The stockholders passed a vote of thanks to President Mooney.

Canada Central.—Mr. Wm. Cassilis, of Montreal, has been chosen President, in place of J. G. Richardson, resigned.

Columbus, Jeffersonville & Cincinnati.—Mr. L. Y. Stuart has been appointed Secretary and Auditor, with office at Mt. Sterling, O.

Columbus & Sunday Creek Valley.—The officers are: President, Samuel Thomas; Vice-President, Josephus Collett; Secretary, W. C. Lement; Treasurer, H. A. V. Post.

Georgia Railroad Commission.—Under the new law, ex-Gov. James M. Smith, Campbell Wallace and Samuel Barnett have been appointed Railroad Commissioners of Georgia.

Grand Junction.—Mr. R. Luttrell, formerly Traffic Superintendent of the Intercolonial, has been appointed General Superintendent of this road and the Belleville & North Hastings. Office at Belleville, Ont.

Great Western of Canada.—Mr. John Whalley McClure, of Whalley Range, Manchester, England, has been chosen Vice-President, to succeed Col. F. D. Grey, now President. Mr. Robert S. Mansel, of No. 33 Devonshire place, Portland place, London, W., has been chosen a director to succeed Mr. Childers, resigned. He comes to this country with the President and Mr. James Bald, another director, to conclude the agreement with the Vanderbilt companies.

Kansas Pacific.—Mr. A. A. Egbert is appointed Division Superintendent, with office in Denver, Col. He will have charge of the Denver Pacific and the Denver & Boulder Valley roads, which will be hereafter known as the Cheyenne Division of this road.

Mr. Egbert is also Superintendent of the Colorado Division of the Union Pacific, late the Colorado Central road.

Lexington, Pleasant Hill & Southern.—The directors of this new company are: R. V. Austin, J. H. Nash, T. P. Shadowns, Austin, Mo.; Joseph E. Young, Chicago; James I. Brooks, Boston.

Long Island.—The following circular from Receiver Sharp is dated Oct. 11:

"Mr. S. Spencer, General Superintendent, having resigned, the following appointments have this day been made: R. M. Gallaway, Assistant to the Receiver; Charles M. Heald, General Ticket Agent and Cashier; H. M. Smith, General Freight Agent; W. M. Laffan, General Passenger Agent; W. M. Buchanan, Auditor of Passenger and Ticket Accounts."

"All communications regarding the business of the company which have heretofore been addressed to the General Superintendent, will in future, until further orders, be addressed to the Receiver."

Louisville & Nashville.—The following circular from General Manager F. de Funiak, is dated Oct. 6:

"All heads of departments and division superintendents are re-appointed. Division superintendents will report, in all matters pertaining to the Transportation Department, to Mr. D. W. C. Rowland, General Superintendent of Transportation."

"Assistant Chief Engineer A. V. Gude will have charge of the Road Department of the Louisville Division, and all employees in that department will report to him for orders."

"For the present, the General Manager will also perform the duties of Chief Engineer, and all correspondence relating to that department will be directed to him."

"Until the appointment of a Superintendent of Machinery,

Mr. D. T. Rennie, Assistant Superintendent of Machinery, will have charge of the Machinery Department."

New York & New England.—At a meeting of the board last week Gen. James H. Wilson was chosen a director, in place of R. S. Grant, resigned. The board then elected General Wilson Vice-President and General Manager, in place of Charles F. Clark, resigned.

Gen. Wilson is a graduate of West Point and served in the army during the war with much credit. After the war he turned his attention to railroad construction. In partnership with Gen. E. F. Winslow he built the St. Louis & South-eastern road, of which he was Vice-President, General Manager and afterward Receiver. The last-named position he still occupies.

Ohio & Mississippi.—At the annual meeting in Cincinnati, Oct. 9, the following directors (one-fourth of the board) were chosen without opposition: John Waddell, Cincinnati; Robert Garrett, Baltimore; Henry M. Day, New York. Messrs. Waddell and Day are new directors, succeeding Gov. R. M. Bishop and J. Pierpont Morgan. The board elected Wm. T. McClintock, of Cincinnati, President, in place of L. B. Parsons, of St. Louis, who declined reelection on account of pressing private business. The election was in the Baltimore & Ohio interest.

Puduech & Elizabethtown.—Col. Robert Meek is appointed General Superintendent, the office of General Manager being abolished on the resignation of Gen. A. Anderson.

Mr. B. F. Blue is appointed General Freight and Passenger Agent. Mr. Gabriel Morton is appointed Accountant and Cashier, in place of T. S. Fauntleroy, resigned.

Col. Meek was formerly Superintendent of the South & North Alabama road for several years.

Pensacola.—Mr. Matt. L. Davis is appointed General Agent at Pensacola, Fla., in place of F. S. Grimes, transferred.

Pensacola & Selma.—In compliance with the orders of D. F. Sullivan, Purchaser, Mr. W. D. Chipley, on Oct. 10, assumed charge of this road (formerly the Selma & Gulf) as General Manager. Mr. Chipley also continues to be General Manager of the Pensacola Railroad.

Mr. F. S. Grimes has been appointed General Agent at Selma. All other employees are continued in their places until further orders.

Profile & Franconia Notch.—At the annual meeting in Concord, Oct. 9, the following directors were chosen: Richard Taft, Profile House, N. H.; J. A. Dodge, Plymouth, N. H.; Walter Aiken, Franklin, N. H.; John H. George, Nathaniel White, Concord, N. H.; Samuel N. Bell, Manchester, N. H.; Emmons Raymond, Boston. The board elected Richard Taft, President; Charles H. Lund, Clerk; Charles Greenleaf, Treasurer.

Railway Passenger & Freight Conductors' Mutual Aid & Benefit Association.—At the annual convention in Chicago last week the following officers were chosen for the ensuing year: President, James G. Sherman, Detroit; First Vice-President, Robert Laughlin, Lansing, Mich.; Second Vice-President, F. D. Underwood, Chicago; Secretary and Treasurer, Charles Huntington, Chicago; Directors, Thomas F. Robb, Port Huron, Mich.; R. G. Wood, Wm. Kelly, J. J. Horning, George E. Hewitt, Chicago; C. H. Briggs, Indianapolis; L. D. Latham, Bloomington, Ill. These are all re-elections.

St. Paul Eastern Grand Trunk.—Col. J. N. Boardman has been appointed Chief Engineer.

Toronto, Grey & Bruce.—At the annual meeting recently the following directors were chosen: L. R. Bolton, W. M. Clark, N. Dickey, John Gordon, W. B. Hamilton, A. Nairn, R. Nother, W. Ramsay, Peter Ryan.

Western Maryland.—The Baltimore City Council has elected the following directors on the part of the city: Alexander Riemann, Daniel J. Foley, Samuel H. Adams, George M. Gill, E. G. Hipsley, Nicholas G. Penniman, J. Alex. Preston and Christian Devries.

At the annual meeting in Baltimore, Oct. 15, the following directors were chosen by the stockholders: J. K. Longwell, Carroll County, Md.; Joshua Biggs, Frederick County, Md.; G. W. Harris, C. W. Hummhouse, Washington County, Md.; Edward Worthington, Baltimore County, Md.

PERSONAL.

—Mr. William Otis, for many years a well-known citizen of Rochester, N. Y., died in that place Oct. 6, of heart-disease. Mr. Otis was formerly a railroad contractor and, in partnership with his brother-in-law, Azariah Boody, of New York, had a number of large contracts, including part of the Boston & Albany, the Boston & Providence, and other roads in New York & Ohio.

Mr. Reuben Wells, for 26 years Master Mechanic of the Jeffersonville, Madison & Indianapolis road, has resigned that position, and it is said, has accepted that of Superintendent of Machinery of the Louisville & Nashville Railroad. Mr. Wells is widely known, not only by his ability and success in his position as Master Mechanic, but also by his valuable reports on boiler construction and management to the Master Mechanics' Association.

—Hon. George Vickers, a prominent lawyer and citizen of the Eastern Shore of Maryland, died at his residence in Chestertown, Md., Oct. 8, in the 78th year of his age. He was United States Senator from Maryland for six years from 1868, and was for several years President of the Kent County Railroad Company.

—Mr. William M. Wadley, President of the Central Railroad Company of Georgia, had his leg broken by a kick from a horse in Macon, Ga., last week. Mr. Wadley is reported as suffering very much, but not in a dangerous condition.

—Gen. A. Anderson has resigned his position as General Manager of the Paducah & Elizabethtown road, which he has held since the formation of the present company.

—Mr. T. S. Fauntleroy, Accountant and Cashier of the Paducah & Elizabethtown road, has resigned his position.

—Hon. Charles Foster, this week elected Governor of Ohio, is a director of the Lake Erie & Western, and was for a long time a director and for a year or two President of the Lake Erie & Louisville, its predecessor.

—The late Mark Hopkins, Treasurer of the Central Pacific Company, was known to have left a very large estate, but a San Francisco paper says that in the inventory taken by his executors they accidentally overlooked two small items, one being \$5,000,000 in registered United States bonds, and the other \$300,000 in gold to Mr. Hopkins' credit in the Treasury at Washington. Steps will be taken at once to remedy these trifling omissions and include these two little matters in the inventory.

—Mr. S. Spencer, on retiring from the position of General Superintendent of the Long Island Railroad, issues the following circular:

"As my official connection with the Long Island Railroad ceases to-day, I must, in bidding adieu, express my apprecia-

tion of the very cordial and effective cooperation extended to me, at all times, by the officers and employees in the various departments of the service."

"If any measure of success has attended my efforts here, it has been largely due to your zeal and proficiency, and for these I return my heartiest thanks to each and all of you."

"May the same success which has marked your work in the past continue to be yours, is the earnest and grateful wish of yours very truly,

S. SPENCER."

—Col. F. D. Grey, President of the Great Western Railway Company of Canada, Mr. James Bald, and Mr. R. Mansel, directors, arrived in New York on the Algeria, last Wednesday.

TRAFFIC AND EARNINGS.

Railroad Earnings.

The following statements are from the reports made to the Minnesota Railroad Commissioner for the year ending June 30, 1879:

	Gross earnings.	Expenses.	Net earn.
Chicago, St. Paul & Minneapolis.	\$1,025,995	\$327,372	\$398,623
St. Paul & Sioux City.	619,614	376,570	243,044
Sioux City & St. Paul.	365,654	277,532	88,122
Winona & St. Peter.	803,442	49,972	44,225
Worthington & Sioux Falls.	94,197		

Other earnings have been reported as follows:

Nine months ending Sept. 30:				
	1879.	1878.	Inc. or Dec.	P.c.
Central Pacific.	\$12,589,241	\$12,863,951	D.	2.1
Chesapeake & Ohio.	1,424,487	1,440,671	D.	1.1
Chicago & North-western.	11,315,520	10,938,238	I.	3.4
Hannibal & St. Joe.	1,231,988	1,426,245	D.	8.9
Ill. Central, Ill. lines.	3,979,257	4,097,444	I.	2.9
Ill. Central, Iowa lines.	1,028,414	1,144,387	D.	10.1
Int. & Gt. North-ern.	1,083,343	948,877	I.	14.2
Mo., Kansas & Texas.	2,188,559	2,100,755	I.	4.2
St. L., Alton & T. H., Belleville Line.	381,155	349,877	I.	8.9
St. Paul & Sioux City (consolidated).	787,859	770,028	I.	2.3
Scioto Valley.	230,942	203,724	I.	13.4
Toledo, Peoria & Warsaw.	892,766	961,270	D.	7.1
Wabash.	3,597,297	3,693,205	D.	5.0

Eight Months Ending Aug. 31:				
	1879.	1878.	Inc. or Dec.	P.c.
At. Miss. & Ohio.	\$988,965	\$1,044,263	D.	5.3
Net earnings.	376,017	283,907	I.	32.4
Bur. Cedar Rap. & No.	884,041	992,981	D.	10.9
Net earnings.	281,738	271,578	I.	3.4
Chesapeake & Ohio.	1,201,886	1,229,928	D.	2.3
Net earnings.	212,426	145,283	I.	46.2
Chicago, Bur. & Quincy.	8,819,621	8,998,425	D.	2.0
Net earnings.	3,991,256	4,099,053	D.	2.6
Int. & Gt. Northern.	905,031	793,193	I.	14.1
Net earnings.	180,355	198,384	I.	9.1
Nash., Chatta. & St. Louis.	1,113,658	1,064,535	I.	4.6
Net earnings.	385,731	349,910	I.	10.2
St. L., Iron Mt. & So.	2,664,778	2,516,913	I.	5.9
Net earnings.	772,924	942,064	D.	18.0
St. Paul & Sioux City (consolidated).	678,076	673,333	I.	0.7
Net earnings.	194,061	228,912	D.	15.2
South'n Minnesota.	354,527	456,331	D.	22.3
Net earnings.	192,889	238,076	D.	19.0

Three months ending Sept. 30:				
	1879.	1878.	Inc. or Dec.	P.c.
Grand Rapids & Indiana.	\$365,337	\$305,093	I.	19.4
Minneapolis & St. Louis.	119,958	100,873	I.	19.05
Month of August:				
Chi., Bur. & Quincy.	\$1,315,559	\$1,632,207	D.	19.4
Net earnings.	713,605	952,377	D.	25.1
Great Western.	323,700	335,800	D.	3.6
Net earnings.	100,000	83,700	I.	19.5

Month of September:				
	1879.	1878.	Inc. or Dec.	P.c.
Central Pacific.	\$1,723,000	\$1,769,477	D.	2.6
Chesapeake & Ohio.	222,601	210,743	I.	5.6
Chi., Clinton, Du-quesne & Minn.	41,078	34,352	I.	19.6
Chicago & North-western.	1,714,000	1,450,302	I.	18.2
Grand Rapids & Indiana.	132,191	103,172	I.	28.1
Hannibal & St. Jo.	177,158	231,169	D.	23.4
Ill. Central, Ill. lines.	542,575	495,299	I.	9.5
La lines.	144,796	135,087	I.	7.2
Mo., Kansas & Tex.	380,759	330,235	I.	15.3
Northern Pacific.	258,000	123,000	I.	109.7
St. L., Alton & T. H., Belleville Line.	54,810	46,516	I.	17.8
St. Paul & Sioux City (consolidated).	109,797	96,695	I.	13.5
Scioto Valley.	28,125	29,151	D.	3.5
Toledo, Peoria & Warsaw.	112,374	125,109	D.	10.2
Union Pacific.	1,106,661	1,000,980	I.	10.6
Wabash.	607,835	544,690	I.	11.6

First week in October:				
	1879.	1878.	Inc. or Dec.	P.c.
Chi. & Eastern Illi-nois.	\$23,452	\$21,888	I.	7.1
Chi., Mil. & St. Paul.	273,000	185,356	I.	47.3
St. L., Iron Mt. & Southern.	180,140	145,029	I.	24.2

Week ending Oct. 3:				
	1879.	1878.	Inc. or Dec.	P.c.
Great Western.	\$114,230	\$102,049	I.	11.9

Week ending Oct. 4:				
	1879.	1878.	Inc. or Dec.	P.c.
Grand Trunk.	\$210,817	\$189,965	I.	11.0

Southwestern Railway Association Rates.

The following rates took effect Oct. 13 on shipments to Atlantic seaboard ports, the rates given being in cents per 100 lbs., and applying only on car-load lots:

	Wheat.	Other grain.	Boxed meats, bones, iron, ores, lead, per barrel.	Flour per barrel.
From Missouri River points to:				
East St. Louis, Hannibal, Quincy, etc.	20	15	20	40
Chicago.	25	20	26	50
Milwaukee.	27½	22½	28½	55
Toledo.	31½	26½	33½	63

The following arbitraries will apply on business from the Missouri River points to Baltimore, Philadelphia, New York and Boston:

Missouri River points to:	1st.	2d.	3d.	4th.
Mississippi River points.	55	45	35	20
Chicago.	75	60	45	26
Toledo.	97	79½	58	39½

On business to Boston the rate on second-class should be 55 cents per 100 lbs. from Missouri River points to Chicago. These rates apply only on shipments directly through to the seaboard.

Grain Movement.

For the week ending Oct. 4 receipts and shipments of

grain of all kinds at the eight reporting Northwestern markets, and receipts at the seven Atlantic ports, have been, in bushels, for the past seven years:

	North western	Northwestern shipments.		P. c. by	Atlantic
Year.	receipts.	Total.	By rail.	rail.	receipts.
1873....	3,511,049	4,441,081	610,538	13.8	4,056,417
1874....	4,555,242	4,347,296	422,841	9.7	2,804,200
1875....	5,077,322	4,193,258	1,314,614	31.3	3,179,589
1876....	6,476,942	4,600,252	1,650,838	35.4	4,069,200
1877....	6,886,193	6,141,867	924,312	15.0	4,828,503
1878....	6,516,744	5,923,837	1,165,641	20.8	6,751,531
1879....	8,354,792	4,904,530	1,485,981	29.8	8,538,381

The receipts at the Northwestern markets are the largest of this year, but they were exceeded in each of three weeks of August and September last year—never before. The shipments of these markets, on the other hand, are the smallest since July. The rail shipments are the largest for five weeks. The receipts at Atlantic ports are 19 per cent. larger than in the previous week, and are the largest on record without any exception. The only weeks previously when the Atlantic receipts amounted to 8,000,000 bushels were that ending Sept. 14, 1878 (8,249,026 bushels), and that ending Aug. 9, 1879 (8,402,315 bushels). But previous to 1878 there had never been a week when the Atlantic receipts reached 7,000,000 bushels, and but two (both in 1877) when they had reached 8,000,000 bushels. They were 7,000,000 first in the last week of August, 1878, but they reached that amount but three times that year. This year, so far, there have been ten weeks that they exceeded 7,000,000 bushels, and since the middle of July there has been but one week that they have been less.

Of the receipts at Northwestern markets for the week this year, 50.5 per cent. was at Chicago, 13.3 at Milwaukee, 13.1 at Toledo, 8.2 at Detroit, 8.1 at St. Louis, 4.9 at Peoria and 1.9 at Cleveland. Milwaukee at last takes the place as second on the list which it usually holds.

Of the receipts at Atlantic ports, 56.0 per cent. was at New York, 20.6 at Baltimore, 8.9 at Philadelphia, 7.7 at Montreal, 4.9 at Boston, 1.8 at New Orleans, and 0.1 per cent. at Portland. New York's receipts have been exceeded but once in the history of the trade, in the week ending Sept. 14, 1878. Baltimore's receipts are the largest for eight weeks, but have been exceeded three times this year. Philadelphia's receipts have been smaller but twice since the middle of July.

For the week ending Oct. 14 (Tuesday), receipts and shipments at Chicago and Milwaukee were, in bushels:

	Receipts.	Shipments.
Chicago.....	3,581,211	4,317,363
Milwaukee.....	1,265,700	965,115
Total.....	4,846,911	5,612,478

Buffalo receipts for the same week were 2,644,286 bushels by lake and 957,080 by rail; shipments, 1,985,715 bushels by canal and 1,633,290 by rail.

For the same week, ending Oct. 14, the previous week and the corresponding week last year, receipts at the four leading Atlantic ports were, in bushels:

	Oct. 14, 1879.	Oct. 7, 1879.	Oct. 15, 1878.
New York.....	4,505,173	4,634,801	4,163,330
Baltimore.....	1,896,470	1,725,637	831,930
Philadelphia.....	1,165,700	979,500	934,100
Boston.....	478,042	400,804	553,518

The four ports... 8,075,385 7,740,742 6,482,878

As compared with the previous week, New York shows a slight decrease and all the other ports an increase. Compared with the corresponding week last year Boston shows a decrease, the other three ports a large gain. New York receipts were 56.5 per cent. of the total, against 59.9 per cent. in the previous year and 64.2 per cent. in the corresponding week last year. Of the New York receipts last week 1,945,234 bushels—42.6 per cent.—were by rail.

Chicago Shipments.

For the week ending Oct. 11 the shipments of freight eastward from Chicago amounted to 32,898, against 27,960 tons the previous week. Of the total 4,026 tons were flour, 20,523 tons grain, and 8,949 tons provisions. The receipts from this freight, if all had gone to New York, would have been a little more than \$200,000. The tons and percentage of total shipped by each road were as follows:

	Tons.	Per cent.
Michigan Central.....	7,057	21.8
Lake Shore.....	6,162	28.3
Fort Wayne.....	6,806	21.0
Pan-Handle.....	3,329	10.2
Baltimore & Ohio.....	6,033	18.7

The Michigan Central's share is vastly smaller and the Baltimore & Ohio's vastly larger by reason of the "evening" for traffic carried before the middle of August, no transfers having been made for a long time after the first agreement to pool was made. The shipments since the advance of rates Aug. 23 each week have been:

Week ending.	Tons.	Week ending.	Tons.
Aug. 30.....	33,808	Sept. 27.....	37,003
Sept. 6.....	27,449	Oct. 4.....	27,960
" 13.....	25,349	" 11.....	32,898
" 20.....	24,204		

This includes the entire period of the 30-cent rate on grain. During part of it a great deal of grain was carried on old contracts at lower rates, but in the last two weeks little, if any. In the last week the shipments were stimulated by the notification of the advance of 5 cents per 100 lbs., which went into effect last Monday.

Pittsburgh Iron Receipts.

The receipts of iron and iron ore at Pittsburgh for the three months from July 1 to Sept. 30 were as follows, in tons:

	1879.	1878.	Inc. or Dec.	P. c.
Blooms and billets.....	11,614	7,322	4,292	58.8
Cinder.....	6,057	6,795	D. 738	10.9
Scrap iron.....	15,029	9,758	5,271	53.8
Pig iron.....	80,795	40,526	40,269	81.3
Iron ore.....	98,615	67,524	31,091	46.0
Total.....	221,110	140,925	80,185	56.9

The large receipts of pig iron were 23,646 tons by Pennsylvania Railroad, main line; 14,434 tons by West Pennsylvania Division; 19,368 tons by Pittsburgh, Ft. Wayne & Chicago; 7,485 tons by Pittsburgh & Lake Erie, and 7,044 tons by Allegheny Valley. The chief receipts of iron ore were 33,672 tons by Cleveland & Pittsburgh; 29,565 tons by Pittsburgh & Lake Erie, and 28,224 tons by Pittsburgh, Ft. Wayne & Chicago.

Coal Movement.

Coal tonnages for the week ending Oct. 4 were as follows:

	1879.	1878.	Increase.	P. c.
Anthracite.....	490,887	424,500	66,387	15.6
Semi-bituminous.....	51,261
Bituminous, Pennsylvania.....	48,286
Coke, Pennsylvania.....	31,200

The combination is apparently given up, the Lehigh operators not having acceded to the agreement. Nearly all the companies have raised prices of coal at tide-water a little.

Coal shipments from Pictou, N. S., for the nine months ending Sept. 29 were: 1879, 158,764; 1878, 104,032; increase, 54,732 tons, or 52.6 per cent.

The coal tonnage of the Pennsylvania Railroad for the nine months ending Sept. 30 was as follows:

	1879.	1878.	Increase.	P. c.
Anthracite.....	747,505	504,461	243,044	48.2
Semi-bituminous.....	1,412,265	1,108,433	303,832	20.9
Bituminous.....	1,209,006	1,210,084	58,922	4.9
Coke.....	1,024,393	776,490	247,903	31.9
Total.....	4,453,169	3,650,468	793,701	21.7

A meeting of coal operators and miners at Pittsburgh has adopted a plan for a settlement of all disputes in the trade. Its leading feature is the reference of all differences to a "Board of Arbitration and Conciliation," to be composed of nine operators and nine miners. This board is to select a committee of six, which is to investigate all disputes, but to make no decision unless by request of the parties concerned. After investigation by this sub-committee the matters in dispute will be referred to the full board, whose decision is to be final; in case of a tie in the board a referee is to be chosen. The board is also to fix wages for mining coal. The agreement has been submitted to the operators' and miners' associations for approval.

RAILROAD LAW.

Right of Way through Homestead Entries on Public Lands.

The case of the Flint & Pere Marquette Co. against Samuel H. Gordon, decided last week by the Michigan Supreme Court, is one of some importance as establishing a precedent. The suit was brought to clear and establish the title of the company to the right of way across a certain 80-acre lot owned and occupied by defendant in Oscoda County, Mich., and acquired by him under the homestead law. The land was entered by defendant in 1888; the road was built in 1872, and the final patent issued to defendant in 1874.

The Court held that the proceeding was a proper one and the suit properly brought by the company. It also held that the company was entitled to the right of way under the act of Congress of 1866 granting the right of way for highway over all public lands not reserved for public uses, the railroad being a highway within the meaning of the law, and that no patent was necessary to establish its right to the land, nothing more than the actual construction of the road being needed to establish its right. The company, by accepting the offer of the government, obtained a grant of the right of way which was perfectly good as against the government, and must be held good as against any other claimant unless his patent antedates it by relation, or unless the equities springing from possession and improvement would prevent any right from being acquired adversely.

The Court holds that the homestead entry vested no title in defendant, but gave him under the law a right of possession which he might perfect by continued occupancy and improvement. His ownership could not be held to antedate the building of the road, as he was not entitled to receive a patent for the land until after the road was finished and had been in operation for some time. He had certain equities in the case, but, leaving these out of the question, the company was not guilty of any wrong in building its road across the land. The homestead entry was made subject to having it defeated, so far as the right of way across the land was concerned, by the subsequent construction of a road before the patent was earned.

Finally the Court holds that defendant should have some remedy against the hardships he may have suffered, and his claim is not forfeited by his refusal to negotiate with the company. While the plaintiff had a right to take the land, defendant has a right to compensation for any improvements he may have made, which were destroyed or damaged by the road. The decree should have allowed the defendant a reference to compute the value of the improvements made upon the land taken for right of way, and it will be modified so as to permit that to be done.

THE SCRAP HEAP.

Railroad Equipment Notes.

The Taunton (Mass.) Locomotive Works recently delivered a new engine to the Seaboard & Roanoke road. The works have a number of orders on hand.

The Jackson & Sharp Co., at Wilmington, Del., is shipping a number of cars this week to Rio Janeiro, Brazil.

The Baldwin Locomotive Works, in Philadelphia, recently delivered two Consolidation engines to the Fitchburg Railroad, for use on the heavy grades of its Vermont & Massachusetts Division. The works are to build several more engines of the same class, with 20 by 24 in. cylinders, for the same road.

The Portland Co., at Portland, Me., is building six locomotives, and engines for five steam vessels.

The Cobourg (Ont.) Car Works have just completed some cars for the Prince Edward County road. A new brick foundry is being added to the works.

W. C. Allison & Co. are building a large addition to their car shops in West Philadelphia.

The Chicago, St. Louis & New Orleans shops in McComb City, Miss., recently turned out a heavy freight engine, the first complete one built there.

The Harlan & Hollingsworth Co., at Wilmington, Del., has just turned out two new Pullman cars. A new boiler shop and a new machine shop are being built as additions to the works. Besides car work, the company is building a transfer boat to carry cars between the Philadelphia, Wilmington & Baltimore at Canton and the Baltimore & Ohio at Locust Point, Baltimore. It is 324 ft. long over all, 36 ft. 8 in. beam, and will have very heavy engines.

The Cleveland Bridge & Car Works were never more busy; and although working three hundred hands, they are compelled to run extra time. Besides other large contracts, they are filling an order from Mr. Emery for ten street cars, a sort of coupé car, to be placed on Woodland avenue.—Cleveland (O.) Trade Review.

Iron and Manufacturing Notes.

The Portland (Me.) Rolling Mill was sold at auction Sept. 30, and bought by J. B. Brown for \$71,000 cash.

The Valley Rolling Mill, at Youngstown, O., has been started up, after being idle, since 1873.

Allegheny Furnace, near Hollidaysburg, Pa., has gone into blast.

The Rohrerstown Rolling Mill, in Lancaster County, Pa., is to be started up after a rest of four years.

A new boiler-plate mill is being built by Samuel R. Seyfert at Gibraltar, Pa.

Codorus Furnace, at York, Pa., is to go into blast as soon as necessary repairs can be made.

Carnegie Brothers & Co., at Pittsburgh, recently rolled an iron plate 3 in. thick, 30 in. wide and 14 ft. long. They are to make about 30 more of the same size for a government vessel now being built on the Delaware.

The Louisville Iron & Steel Co. is running its rolling mill in Louisville, Ky., to its full capacity, and has orders for some time ahead. The company is said to have been very fortunate in securing a large supply of pig iron before the rise in price began.

The rolling mill at Marietta, O., fitted for the manufac-

ture of iron rails and merchant bar, is offered for sale by John Bloodgood, of 84 Broadway, New York.

The rolling mill at Columbia, Pa., is offered for sale by H. M. North, of that borough. The property includes 15½ acres of land, a store, barns and tenement houses, besides the mill buildings.

Ringgold Furnace, near Pottsville, Pa., has been leased by Mr. David Longnecker, Jr., and will go into blast about Nov. 1; repairs are now in progress.

The Centralia (Ill.) Iron & Nail Works began to run the puddling department double turn recently, and have more orders on hand than can be filled for some time.

The Laclede Rolling Mill, at St. Louis, is nearly ready to start up, and the repairs will soon be finished. The four new Siemens heating furnaces are nearly ready for use.

The Albany City Iron Co. expects to put its furnace in Albany, N. Y., into blast next month.

The Colwell & Collins Norway Bolt & Nut Works, in Cleveland, O., are running to their full capacity, with plenty of orders.

The Pittsburgh Bessemer Steel Co., an organization composed of leading firms engaged in the manufacture of steel in this city, is about to erect works for the purpose of making steel billets for use by individual firms. The product will be entirely consumed by the stockholders. The site for the works will probably be selected the present week, and then the construction of the buildings will be at once commenced.—Pittsburgh Telegraph, Oct. 14.

Bridge Notes.

The Edgemoor Iron Works, at Wilmington, Del., are to build the new bridge over the Schuylkill at Filbert street, Philadelphia, for the Pennsylvania Railroad. It will have three tracks, and will be built in three spans, one of 144 ft., and two of 160 ft. each. The Edgemoor Works have now contracts for over 12,000 tons of iron-work on hand.

Prices of Rails.

Steel rails are quoted at \$50 to \$53 per ton at mill, the highest price being offered for early delivery. It is impossible, however, to secure immediate delivery for large orders, the mills being all full.

Iron rails are quoted at \$47 per ton at mill for 56-lb. section, and \$48 to \$50 for lighter rails. Several sales of small lots of light rails are noted, and one large order for 56-lb. rails. There is more inquiry for new rails than a week ago.

Old iron rails are quoted at \$31 to \$32 per ton in Philadelphia, and \$34 to \$35 in Pittsburgh, but few or none are to be had at present.

Railroad spikes are quoted in Pittsburgh at 3 cents per pound for immediate, and 3½ cents for future delivery, with a brisk demand.

Prices of Old Material.

Pittsburgh quotations for scrap iron and steel are as follows: Old car-wheels, \$30 to \$31 per ton, gross; old car-metal, \$19 to \$20; cast borings, \$15 to \$16; No. 1 wrought scrap, net, \$30 to \$32; old car-springs, \$31 to \$32; old car-axles, \$32 to \$33; wrought turnings, \$19 to \$20. Increasing demand and rather a light stock are reported. Scrap iron is in better demand than scrap steel.

Chest Protectors.

Last evening one of the signal lamps on the rear car of a train on the Central Railroad dropped off near the Chilton street bridge and was picked up by a woman who started on a run after the train, shouting at the top of her voice, "Stop, mister, you have lost your lantern."—Elizabeth (N. J.) Journal.

Duluth has three churches which can be turned into grain elevators with but little expense. She built 'em that way on purpose.—Detroit Free Press.

An Oil City baggageman believes that a "chest protector" refers to something that makes a trunk more difficult to smash.—Derrick.

That eminently piscatorial story about the Hopkins estate coming in for an odd five million, which has been mislaid in Washington a year or two, was thinner than a slice of boarding-house bread from the very start. We defy anybody to permit a single five-cent nickel to lie around the nation's capital for five consecutive minutes without some "eminent politician" clamping on to it like a bull-dog to the basement of an apple stealer's trousers. Said coin wouldn't be worth five seconds' insurance, unless it was chained down to a fifty-ton granite block. Even the corrected version of the aforementioned alleged windfall making it only \$5,000 is palpably diaphanous. If that amount of securities had been found concealed for a generation or two in the Hopkins family bible we should feel a little more like taking stock in the romance.—San Francisco Evening Post.

The elevated railroads in New York have developed a new and very unpleasant variety of hog. This description of beast rides in the elevated cars and spits out of the window. It doesn't require much of an aim to hit somebody on the sidewalk below.

A railroad company, which is asking for a county subscription down in South Carolina, is circulating passes over the road as inducements to voters. As the line is not even surveyed yet, this looks like the cheapest attempt to bribe on record.

Tramps.

On the night of Oct. 7, a party of tramps boarded Capt. Aldridge's freight train, bound east, at Mt. Airy, Md., on the Baltimore & Ohio, cut the caboose loose from the train and robbed it, taking the conductor's clothing, tickets, time-book and punch, leaving their old clothing at Mt. Airy. The conductor at the time of the robbery was putting down the brakes. The tramps, after taking all they could find in the car, started it down the road. Capt. Aldridge, seeing his caboose coming, had the presence of mind to cut his rear car loose, thereby preventing a smash-up. The tramps made good their escape.

OLD AND NEW ROADS.

Allegheny Valley.—This company paid \$11.50 in cash only on each \$35 coupon due Oct. 1 on its income bonds, paying the balance of \$23.50 in new income bonds or, for sums less than \$100, in scrip convertible into such bonds. On the April coupon \$17.50 in cash was paid, making for the year's interest \$29 in cash and \$41 in bonds or scrip.

Arkansas Valley.—Notice is given that Adolphus Meier and Carlos S. Greeley, trustees, will pay to bondholders a dividend of \$38.45 per bond, at their office in St. Louis. This dividend is the net result of the proceeds of the sale of the road under foreclosure, and there will be no further payment. The road, formerly a branch of the Kansas Pacific, is now abandoned.

Atchison, Topeka & Santa Fe.—The town of Santa Fe, N. M., has voted to issue \$150,000 bonds in aid of a branch from this road. This is about \$10,000 per mile of the branch.

Atlantic & Great Western.—In the Court of Common Pleas at Akron, O., Oct. 10, Judge Tibbals approved an order agreed upon between the attorneys of the Receiver and of Henri Louis Bischoffsheim and the firm of Bischoffsheim & Goldschmidt, whereby litigation involving over \$2,000,000,

and occupying the attention of the court for four years past, is mutually settled and withdrawn from court. The petition of the plaintiff, W. H. Taylor and W. A. Dunphy, trustees of the Ohio mortgage, sets forth that the English trustees, representing 91 per cent of the bonds issued under the consolidation mortgage, have settled all issues between Bischoffsheim on the one side, and the plaintiffs and the Atlantic & Great Western on the other, and that the settlement will be beneficial to all parties concerned. This is considered an important order, since it greatly facilitates the sale and reorganization of the road under a recent order of the same court.

Bangor & Bucksport.—The change of this road from standard to 3-ft. gauge was completed last week, and the first narrow-gauge train ran over the line on Oct. 9. It is 18 miles long, from Bangor, Me., to Bucksport, and, until Oct. 1, was leased to the European & North American.

Belton, Williamston & Easley.—Meetings are being held to advocate the construction of this road and to secure subscriptions to the stock. The line is from Belton, S. C., on the Greenville & Columbia road, crossing the Blue Ridge through Eastato Gap, and thence by Brevard and down the French Broad Valley to Swannanoa Junction, near Asheville, S. C. The distance as surveyed is 99 miles, and the estimated cost of grading is \$362,000. The South Carolina Legislature is to be asked to authorize county subscriptions.

Brattleboro & White Hall.—The work of laying the track on this road from Brattleboro, Vt., to Londonderry was to have been done this fall. No rails have yet been delivered, however, and it is feared that the track cannot be laid before winter sets in, unless the iron contractors furnish the rails very soon. In any event the completion of this section is promised for early spring.

Canada Central.—The new owners of this road, Messrs. Worthington & McIntyre, are to pay \$2,500,000 for the property. It is said that they intend to make a narrow-gauge road of it.

Canadian Pacific.—An Ottawa dispatch says: "Mr. Sandford Fleming, Chief Government Engineer, has left for Manitoba, where he will make a personal inspection of works in that district and of the projected route for the Winnipeg Branch. The general impression here is that the contract for the Burrard Inlet route will not be let at the time specified in the advertisements calling for tenders."

Central Pacific.—The San Francisco *Evening Post* of Oct. 4 says: "Thousands of people ride daily over the Oakland ferries and in the long trains of cars upon the local railroad over Long wharf, to and from the city of Oakland, and few of them know why so many men are employed driving piles and unloading flat-cars and dumps filled with rock, earth and gravel into the bay. This work has now been in progress for about two months, and during that time there has been dumped into the bay nearly 100,000 cubic yards of material. The object of this is to make a solid roadbed from the outer ferry landing to West Oakland, which, when completed, will be one of the most important improvements for Oakland ever carried out. The work is now so far advanced that it is a matter of interest to many thousands of people to know all the facts concerning it. The present ferry landing is now about two miles from the solid earth at West Oakland, and the traffic has increased so rapidly within a few years that the railroad company, foreseeing a further increase, find that in a short time their facilities will be wholly inadequate to meet the exigencies of passenger traffic. Only two tracks now run to the end of the wharf. Upon one of these the local trains run exclusively. The other track is used by the overland, Los Angeles, San Jose, and trains to Tracy via the old overland railroad. Hence when it becomes necessary to run a ferry or local train every fifteen minutes, as it will by next year, more tracks must be laid upon which to run those trains. It is also a fact that very many timid people are afraid that the present tracks on Long wharf are not entirely safe, and this prevents many business men in San Francisco from making their homes on the other side of the bay. It is proper to remark here, however, that those who ride over this road have not the slightest fear, as the piles are constantly being inspected and looked after by a man employed exclusively for this purpose. About two-thirds the distance from Oakland Point to the end of Long Wharf there is a place known as the old Cohen Landing. Here it was that a few years ago a terrible calamity occurred on the occasion of a picnic excursion of the Garibaldi Guards, when in the rush of passengers off the boat to the cars the apron gave way and precipitated many men, women and children into the bay. Many, when taken out were cold in death. It is at this point, or on the south side of it, that the future Oakland Ferry landing is to be located, and that in the near future. To make this change, the plans have been drawn, and, in accordance with them, work has been commenced as follows: About 400 feet south of the local track at Oakland point piles were driven and a track laid about half way to the old Cohen landing, and in such a manner as to form a junction with the local track at that point. On this, trains were run, loaded with rock and unloaded into the bay on the south side, forming a rubble riprap, which is to prevent the wash of the waves from affecting it. These rocks were dumped in so that they came to the level of the track, which is some ten feet above low-water mark. The bay here shoals so gradually that at ebb tide the bottom is uncovered for several hundred yards from the shore. As soon as a sufficient amount of progress had been made with this riprapping, long trains of dump cars were employed to bring in earth and gravel, which was thrown on the inner side, and such progress was made that a solid tongue of earth and rock stretches out into the bay from the end many hundreds of yards. Another track was laid north of the local track, and on the outer side of this was also thrown in rock until a complete wall protected that side from the action of the water. The space is now filled between this track and the south side. The manner of doing this is to run the dump trains down and tip the cars, the earth falling in, and a temporary track is moved over, ties, rails and all, and upon this runs the next train, and so on until the work is completed. After reaching this junction of the new with the local track, another was constructed upon piles driven for this purpose and run over south until it forms a junction with the old overland track. This brings it down nearly to the old Cohen landing, and from this point two other tracks will be laid south of the overland track to a point immediately south of the old landing, where the new ferry slips will be made, and a magnificent depot erected, which, as well as the tracks, will be upon made ground. As a matter of course, as the work of filling in progresses, it becomes less rapid, as the water is deeper and the fill is so much greater. It is estimated that it will take at least 1,000,000 cubic yards of earth and rock to complete this fill, which will be wide enough to enable the company to use six tracks. The reporter has been at some pains to ascertain where all this material is obtained, as it is like casting a mountain into the sea. Away up near Niles' Station, in Alameda County, the railroad company owns some land which is of no value for either agricultural or grazing purposes. It is a part of the Contra Costa mountains, and here a hundred men are at work drilling and blasting the rocks and loading them into long trains of flat cars, each car carrying eight

cubic yards. When loaded they are run into Oakland and out on the wharf, where many other men unload them. The earth is what is known as adobe; and is procured near Fruit Vale, adjacent to East Oakland. A special track was laid from the overland track upon which to run the dump cars, which are loaded by men, and also what is known as a steam paddy, which is precisely like a dredger, and scoops up enough earth in three measures to fill a car containing three cubic yards of earth. These, when loaded, are run in and dumped as described above. This work, it is expected, will be completed within six or eight months at farthest, and will be a most beneficial one to Oakland, and will have the effect of adding millions of dollars to her assessment rolls. The work is under the direction of J. H. Strowbridge, and the depot will be built by Arthur Brown. This improvement, however, is but a commencement of a work in contemplation by this company, which will result in reclaiming a vast amount of land now neither sea nor land. The railroad tracks now at this point are so numerous as to bewilder the unsophisticated, and still more are being constructed. This work, which is a great public improvement, is just now a great blessing to hundreds of men who would otherwise be out of employment, the wages paid being from \$1.50 to \$1.70 per diem."

The great ferry boat Solano, which is to run between Benicia and Martinez, is so nearly finished that trains will be put on that route about Nov. 1. The route is over the California Pacific from Sacramento to Suisun, thence by a new branch to Benicia, then by ferry across to Martinez and by the Northern Railroad Division to Oakland. This is much the shortest route between San Francisco and Sacramento, and the fast trains are expected to make the run in four hours, allowing half an hour for Oakland ferry and half an hour for the Benicia ferry. As soon as the latter gets to working well, it is expected that the running time can be cut down to 3½ hours. Only local trains will be run on the Vallejo end of the California Pacific, connecting with the through trains at Suisun.

Chicago & Alton.—The express train on this road which left Kansas City on the evening of Oct. 9, was stopped at Glendale, Mo., by a signal, and immediately taken possession of by a band of 18 or 20 masked and armed men. They offered no violence to passengers, only compelling them to keep still, but proceeded to search the express car, taking all the valuable packages from the safe. They did not secure a very large amount, taking about \$6,000 in currency, and some valuable papers. It is thought that they expected to secure a large shipment of bullion which had come on from Denver by the Kansas Pacific, but that had been sent East by another line. After they left, it was found that they had piled stones and other obstructions on the track near by to wreck the train in case it did not stop at the station.

The company has offered a reward of \$15,000 for the arrest of the robbers, and several parties are in pursuit of them.

Chicago, Bellevue, Cascade & Western.—This company has been a long time talking over and grading its road, and at last succeeded some two months ago in getting iron for a part of it. Track is now reported laid from Bellevue, Ia., on the Chicago, Clinton, Dubuque & Minnesota, westward to La Motte, 12 miles, and the company hopes to reach Cascade, 20 miles further, this year.

Chicago, Pekin & Southwestern.—The whole litigation which, of late, has grown somewhat complicated, over this road is to be removed to the United States Circuit Court, the required petition and bond having been filed.

Chicago, St. Louis & New Orleans.—Notice is given that the valid first-mortgage bonds of the Mississippi Central which become due Nov. 1, will be paid on presentation at the office of this company, No. 31 Nassau street, New York. The bonds will cease to bear interest at maturity.

A special meeting of stockholders was held in New York, Oct. 13, at which it was resolved to change the gauge of the road from 5 ft. to the standard 4 ft. 8½ in. Also, to reduce the grades on the road sufficiently to admit of the running of freight trains of at least 25 cars each way over the entire length of the road; lastly to devote the net earnings of the road for 1879 and 1880, over and above the interest charges, to this purpose, and, if necessary, to sell \$500,000 of the company's first-mortgage bonds at not less than par.

Chicago & Western Indiana.—In the Circuit Court in Chicago, Oct. 10, a bill was filed on behalf of a number of property-owners to enjoin this company from building its road into Chicago. The bill charges that the ordinance authorizing the laying of tracks on the proposed line is null and void; that the corporation is simply the Chicago & Eastern Illinois under another name, and that that company already has an entrance into the city; that the ordinance really left the company to locate its road as it pleased, and that it conflicts with the general law, having been passed without the petition and authorization of the owners of property which the law requires. It is further charged that the ordinance generally conflicts with the rights of holders of property, and with the provisions of the state constitution authorizing condemnation of lands.

Columbus & Sunday Creek Valley.—Work is now progressing well on the line from Columbus, O., to Bush Station, 28 miles, and the company hopes to have the track all laid next month. From Bush Station track was laid some time ago by the old company (the Ohio Central) to Bremen, 27 miles, and also from New Lexington to Moxahala, 7½ miles, these two sections being connected by the Cincinnati & Muskingum Valley track from Bremen to New Lexington, 11½ miles, the use of which has been leased. When the line to Bush Station is finished, the company will thus have a road from Columbus to Moxahala, 74 miles, and work has also been begun on an extension from Moxahala down the Sunday Creek seven miles to some coal mines.

Denver & Rio Grande and the Denver, South Park & Pacific.—The Colorado Springs (Col.) *Gazette* publishes the following articles of agreement for the consolidation of the interests of the Denver & Rio Grande and the Denver, South Park & Pacific railroads, with the statement that the articles have been signed by the representatives of the interests concerned:

"First—The Denver & Rio Grande Company will build to Leadville and beyond, giving the South Park line equal trackage from the junction of the South Park road on the Arkansas at the mouth of Trout Creek, with the Denver & Rio Grande line to Leadville. As a rental for the use of this part of the Denver & Rio Grande line, the South Park will pay 8 per cent, on one-half the cost of construction. Pending the settlement of the Grand Cañon case, the Denver & Rio Grande will immediately build from the junction to Leadville. The rails and other material are to be transported at cost by the South Park for it, if there is any disagreement on this point, then Messrs. Fisher and Dodge will settle it. Until the Denver & Rio Grande Company connect their Cañon Branch with the junction, the Leadville Extension will be operated by the South Park, which will pay over the net earnings of the extension to the Denver & Rio Grande. When the Cañon Branch is completed to the junction, then the gross earnings

from Pueblo to Leadville, and from Denver to Leadville will be divided equally between the two companies. In equalizing the excess of one over the other, 50 per cent. will be allowed for operating expenses.

"Second—The South Park shall build up Chalk Creek into the Gunnison country, and all extensions of this line. The Denver & Rio Grande shall have equal trackage on this line, paying a rental of 8 per cent, on one-half of the cost.

"The Denver & Rio Grande Company will immediately make their extensions to the San Juan country, and beyond and to New Mexico independently of the South Park. The San Juan country is left to the Denver & Rio Grande."

Detroit River Crossing.—A dispatch from Detroit, Oct. 14, says: "The Board of Engineers and officers detailed by the Secretary of War, under the act of Congress, to inquire into and report upon the feasibility of bridging or tunneling the Detroit River at Detroit, for railway purposes, began deliberations here to-day. The board consists of Cols. W. F. Reynolds and N. Michler, and Majors O. M. Poe, D. C. Houston and J. M. Weson. The local citizens' committee will bring strong pressure to bear in favor of a bridge, it is believed."

Evansville & Terre Haute.—This company has completed and opened for business a short branch from a junction near Fort Branch, Ind., west to Owensville in Gibson County, a distance of six miles. Grading was begun last spring and tracklaying in August.

Georgia Railroad Law.—Late dispatches indicate that the Georgia Legislature has passed the law providing for the appointment of a Railroad Commission and the regulation of rates. We have not yet received a copy of the law as passed finally, and do not know what amendments have been made to the bill which passed one house, and which we published some time ago.

Gulf, Colorado & Santa Fe.—The grading on the extension of this road is now nearly completed from Richmond, Tex., northwest to Brenham, a distance of about 60 miles. Tracklaying will be begun as soon as the bridge over the Brazos River is ready for the passage of trains. The company hopes to have trains running to Brenham by the end of the year.

Illinois Central.—The Traffic Department reports the earnings on this company's lines in September as follows:

	1879.	1878.	Increase.	P. c.
In Illinois	\$542,575	\$495,299	\$47,276	9.5
In Iowa (leased lines).....	144,786	135,087	9,699	7.2
Total	\$687,341	\$630,386	\$56,955	9.0

During September, 1879, the land sales were 2,248.39 acres for \$13,962.92, and the cash collected on land contracts was \$13,160.17.

Indianapolis, Decatur & Springfield.—Track on this road is now laid for 15 miles eastward from the old terminus at Guion, Ind., leaving 36 miles still to be laid to reach Indianapolis. Work is progressing from both ends of the line as fast as possible, though many delays have been met with.

Kansas Central.—Tracklaying has been begun on an extension of this road from Onaga, Kan., westward to Butler, 14 miles.

Kansas City, Lawrence & Southern.—The track on this company's Southern Kansas line is now laid to Elk Falls, Kan., 30 miles west by north from the old terminus at Independence, and 40 miles from the main line at Cherryvale. The grading is nearly finished some 20 miles further, to the Cowley County line.

Kansas Pacific.—The Junction City & Ft. Kearney Branch is now completed and opened for business to Lawrenceburg, Kan., nine miles beyond the late terminus at Clyde, and 64 miles from Junction City.

The Solomon Branch has been completed and opened for business to Delphos, Kan., 10 miles north by west from the late terminus at Minneapolis, and 33 miles from the junction with the main line at Solomon. Work is progressing on an extension to Beloit.

The Denver Pacific road, under direction of the trustees under the mortgage, will hereafter be operated in connection with this road, as it was formerly, before a receiver was appointed. It will be known as the Cheyenne Division. The company will soon re-open for traffic the old Lawrence & Southwestern road, from Lawrence, Kan., to Carbondale, 31 miles. This road became part of the St. Louis, Lawrence & Western by consolidation, but has not been worked since that road was sold under foreclosure, and the section east of Lawrence bought by the Atchison, Topeka & Santa Fe.

Keokuk & Northwestern.—The survey of this road from Keokuk, Ia., to the north line of Lee County has begun. Votes of aid from several small towns have lately been secured.

Lexington, Pleasant Hill & Southern.—This company has been organized to build a railroad from Pleasant Hill, Mo., on the Missouri Pacific, southward to Butler in Bates County, about 40 miles.

Michigan Central.—This road had last week the worst accident that we have had to report thus far this year. About 1 o'clock on the morning of the 10th the Pacific express, running at the rate of about 25 miles an hour, ran into the head of a switching train, which had gone out on the main track at Jackson Junction, Mich., to switch some freight cars across upon a siding the other side of the yard. There was some fog at the time, but the men on the yard engine, which had almost stopped, saw and heard the express in time to save themselves by jumping. It is believed that the engineer of the express saw the head-light of the yard-engine, but in the fog did not realize that it was on the main track until too late. He stuck to his engine and did his best to stop it, putting on the air-brakes and whistling for the hand-brakes. The express train had 14 cars, a baggage car, an express car, a smoking car, an emigrant car, four ordinary passenger and six Wagner sleeping cars. As the trains struck, the two engines reared in the air and fell to the right, the heavy locomotive of the express train bearing the other backward. The express and baggage cars of the incoming passenger train continued on, sliding clear over the locomotives, and only coming to a stand-still many feet beyond. The smoking car, next to the baggage car, coming full against the end of the locomotive, crushed the cab into minute fragments, and was brought to a dead stop. The next car behind, a second-class or emigrant car, urged on by the terrible force of the long train behind, pressed against the smoking-car, causing it to rise from its trucks and tear completely through the emigrant car, crushing and cutting away everything in its path. The cars telescoped in the most complete manner which could be imagined, the two being actually consolidated into the space of one. The terrible impetus of the whole was demonstrated by the appearance and location of the car trucks, 32 car-wheels being crowded under one coach. The third car, rising partially from the trucks, still maintained its form, and although badly

wrenched and broken, the glass being smashed out of the windows, there were but few injured. None of the other cars left the track and their occupants were uninjured. Despite the violence of the shock some of the passengers in the sleeping coaches slumbered on undisturbed until awakened by the shouts of the train-men and the busy running to and fro. The engineer, fireman and 13 passengers were killed; the baggage-master and 28 passengers hurt.

The testimony taken after the accident is conflicting, the yard-men apparently trying each to shield himself as far as possible. The express had been 45 minutes behind time, but had made up a little of this, and is believed to have been about 35 minutes behind when the accident took place. As nearly as can be told from the conflicting evidence, the yard-master ordered out the switching engine, the engineer at first declining to go upon the main track when the express was due, but yielding when the yard-master told him that he had learned at the telegraph office that it was 45 minutes late. Apparently both men took a risk not justified by the rules of the road, although they claim that they had time enough if the operator's statement as to time had been correct. The inquest is not yet finished at the time of writing.

Missouri Central.—Work on the grading of this road (formerly the Jefferson City, Lebanon & Southwestern) was begun at Jefferson City, Mo., Oct. 9. The contractor is W. S. Pope.

Missouri, Iowa & Nebraska.—Eight towns on the proposed extension of this road from Corydon, Ia., westward, have voted aid, and several more are to vote soon. This extension is from Corydon to Bedford in Taylor County, about 75 miles.

Nashville, Chattanooga & St. Louis.—At a recent meeting of the board it was resolved to proceed at once with the extension of the McMinnville & Manchester Branch from McMinnville, Tenn., to Caney Fork, 13 miles. Resident-Engineer Morris was directed to prepare estimates and advertise for bids, so that the work may begin by Nov. 15.

New Brunswick & Canada.—This company has just completed a branch 6½ miles long, running from McAdam Junction, N. B., west to Vanceboro. It is parallel to the St. John & Maine, and its object seems to be to avoid the use of that company's track in making connection with the European & North American at Vanceboro.

New Orleans, Mobile & Texas.—A dispatch from New Orleans, Oct. 10, says: "In the conveyance office yesterday the sale was recorded of the New Orleans, Mobile & Texas Railroad from Westwego to Vermillionville to Morgan's Louisiana & Texas Railroad by Messrs. F. M. Ames, Joseph Seligman, Henry Morgan, E. D. Morgan, George Bliss and Harrison Durkee. The price is \$300,000, payable in five years."

The sellers of the road bought it at foreclosure sale, but have never succeeded in completing a reorganization. The road is completed from Westwego to Donaldsonville, 65 miles, and partly graded from there to Vermillionville. The Morgan Company has probably bought it to prevent any one else from getting it.

In the matter of this sale, the following order has been entered by the United States Circuit Court, which still has control of the property:

"The petitions of Frank M. Ames, trustee and plaintiff in the suit pending in the court aforesaid, of Jos. Seligman, Henry Morgan, Edward D. Morgan, Geo. Bliss and Harrison Durkee, a purchasing committee referred to in the petition, and of Morgan's Louisiana & Texas Railroad and Steamship Company, a party to the petition, have been submitted by the counsel of the parties to the court for an order to be made as prayed for in the petition above mentioned.

"It appears from the documents aforesaid, and from the proceedings in the cause aforesaid, that the railroads of the New Orleans, Mobile & Texas Railroad Company, lying in the state of Louisiana west of the Mississippi River, purchased by said Ames as trustee under the decrees of this court, and that so much of the main line of the railroad as extends from the point Westwego near to New Orleans to Donaldsonville, and thence to Vermillionville, with the lines leading thereto, constructed or to be constructed, remains in the possession and control of the said trustee for an advantageous disposition.

"And it further appearing that there was a sale of the same to the said Jos. Seligman, Henry Morgan, Edward D. Morgan, George Bliss and Harrison Durkee, under an order of this court, and that the said parties having failed to comply with the conditions, the same is incomplete, and that the Morgan Louisiana & Texas Railroad and Steamship Company have agreed to accept the title to be made by the said Ames, in the place of the said purchasers, with their consent, and that the conditions of the sale made to purchasers will be fulfilled to the said Ames.

"And the parties having submitted a copy of the deed made by the said Ames in furtherance of this contract, the court, upon consideration, orders that the petitions and documents aforesaid be filed among the proceedings of the cause; that the substitution of the Morgan Louisiana & Texas Railroad and Steamship Company, as purchasers, be allowed; that the deed made by the said trustee, F. M. Ames, to said company, be sanctioned, and that the said trustee be authorized to surrender the property therein described to the Morgan Louisiana & Texas Railroad and Steamship Company, conformably to the terms of this conveyance. The court further orders that the trustee make a report to the Circuit Court at its next term as to his action under this order."

Ohio & Mississippi.—At the annual meeting in Cincinnati last week President Parsons reported that the road was in good condition, and that there would be no trouble in carrying out the plan of reorganization but for the unexpected refusal of holders of Springfield Division bonds to complete their part of the contract. A general determination not to accede to the demands of these bondholders was expressed at the meeting.

Pennsylvania.—The Pittsburgh Telegraph of Oct. 10 says: "A number of prominent business men went East yesterday to consult with Col. Thomas A. Scott, President of the Pennsylvania Railroad, in regard to the extension of the Pittsburgh, Virginia & Charleston Railroad, now controlled by the Pennsylvania, to Morgantown, W. Va., and ultimately to the headwaters of the Cheat River. It is proposed to extend the Pittsburgh, Virginia & Charleston road as far as Uniontown, passing through Brownsville, and at the former place a connection is to be made with the Southwest Pennsylvania Railroad. The joined roads will then be extended to the Monongahela, striking the river at Geneva, and then the river will be followed as far as Morgantown, which is the objective point for the present. This route is held to be preferable to an extension of the Pittsburgh, Virginia & Charleston along the river, because the detour to Uniontown is not so great as that required in following the Luzerne bend, and a large amount of work will be saved by the use of the already graded Brownsville road, the route will open the very best part of the ore and coal region of West Virginia, and the advantage of the Southwest Penn. connection is a very important consideration."

Pennsylvania, Poughkeepsie & New England.—This company lately began work on the grading of the section of its line between Portland, Pa., and the Wind Gap.

Philadelphia & Atlantic City.—A controversy between the ex-treasurer of this company and a Wilmington car-builder over the ownership of some bonds of the road, calls out the statement that the ex-treasurer received them as a bonus on the contract for furnishing cars to the road. This seems to have been the general style of management under which the road was built, and it is not much wonder that its financial failure has been so complete.

Pontiac Branch.—This company has finally located its road from Auburn, R. I., on the New York, Providence & Boston road, to Pontiac Village, 4½ miles and has made application to the Court of Common Pleas for the appointment of commissioners to condemn the right of way.

St. Louis, Kansas City & Northern.—At the special meeting in St. Louis, Oct. 14, the agreement of consolidation with the Wabash Company was ratified and confirmed. There were 186,000 shares voted in favor of the consolidation and only 500 against it, leaving 53,500 shares not voted on.

The company has completed a new track from the former junction with the Hannibal & St. Joseph at Harlem, Mo., to the Kansas City bridge, a distance of eight miles. The Hannibal & St. Joseph has been enjoined by the Missouri courts from interfering with this line, and from preventing the passage of trains across the bridge. The new track was to be in use this week.

The track on the new Omaha Extension was completed last week by closing the gaps between the Iowa line and Council Bluffs. The work of building depots, putting in sidings, ballasting and finishing up is being pushed as fast as possible, and through trains will soon be put on. This extension is built by the Council Bluffs & St. Louis Company, nominally a separate organization; it extends from Pattonsburg, Mo., the terminus of the St. Louis, Council Bluffs & Omaha road, northwest to Council Bluffs, and is 145 miles long. With the main line of the St. Louis, Kansas City & Northern and its leased branch from Brunswick to Pattonsburg, it completes a line 412 miles long from St. Louis to Council Bluffs. It has been built chiefly for the purpose of making this through line, but there is said to be much good country along the road, from which some local traffic may be expected.

St. Louis & Mexican Gulf.—An effort is being made to revive this old project for a line from Springfield, Mo., to Sabine Pass, Tex., by way of Fayetteville, Ark., and Ft. Smith. Very little has been done as yet.

St. Louis & San Francisco.—This company's new St. Louis, Wichita & Western line now has track laid from the terminus of the Kansas Division at Oswego, Kan., west by north to the Kansas City, Lawrence & Southern crossing at Cherryvale, a distance of 28 miles. From Cherryvale the grading is all done through the Neosho Valley as far as Fredonia, some 25 miles.

St. Paul and Montreal Connection.—A dispatch from Montreal, Oct. 9 says: "The President of the Board of Trade has received a letter from Mr. Richard Chult, Secretary of the Board of Trade of Minneapolis, Minn., stating that they are endeavoring to build up an independent centre at that city and St. Paul. Finding that the railway interests centering in Chicago are antagonistic, they are seeking an independent outlet in the East not controlled by any of the present trunk roads. The letter asks if the Dominion Government road will extend its line to Sault Ste. Marie, and if so, what would be the distance from Montreal to the foot of Lake Superior by this line. It is stated that if a railroad be built by the Sault Ste. Marie route, the distance to tide-water at Montreal from Minneapolis would be shortened 200 miles, or 550 miles nearer Liverpool than via Chicago. The letter was laid before the board, together with a digest, by the Secretary of the Montreal board, giving the distances by the different routes. The members of the board present warmly advocated the new route, which, it was stated, the Dominion Government is determined to adopt. A deputation from this city has been invited to visit Minneapolis in furtherance of the scheme."

St. Paul Eastern Grand Trunk.—The line from Chipewagan Falls, Wis., to Cadotte Falls, 12 miles, has been located ready for the contractors. The engineers are now to run two or three preliminary lines eastward, one by way of Wausau and another to Medford.

St. Paul, Minneapolis & Manitoba.—The contractors on the extension of the Branch Line have track now laid from the late terminus at Alexandria, Minn., northwest to Tumuli, 25 miles, nearly approaching the end of the heavy work on the Fergus Falls section. Tracklaying was to be begun this week at Barnes, on the northwest end of the extension. A very large force is now at work on the heavy cuttings near Fergus Falls, and it is expected that the whole line will be ready in time to avoid delaying the track-layers.

Selma & Gulf.—This road has been transferred by the court to Mr. D. F. Sullivan, purchaser at the foreclosure sale. It will be known hereafter as the Pensacola & Selma Railroad.

Shenango and Allegheny.—This company defaulted on the interest due, Oct. 1, on its \$1,200,000 first-mortgage bonds. Some of the local bondholders have already made application for a receiver, but it is not probable that it will be pressed. It is stated that the officers of the company have been trying to raise the money required, and expect to be able soon to pay. The default is due to the great falling off in business on the road, resulting chiefly from the decline of oil production in the region which it serves.

The road extends from Shenango, Pa., to Hilliard, 46 miles, and its earnings have heretofore been very good; in 1877 and 1878 dividends were paid on the stock.

South Pacific Coast.—The last remaining obstacles to the completion of this road from Alameda, Cal., through to Santa Cruz are the tunnels, the present condition of which is as follows: Tunnel No. 1, near Alma, 300 feet long, is completed. Tunnel No. 2 was a short one through a bed of gravel, and has been converted into an open cut, partly by a freshet. Tunnel No. 3 is the largest one, is 6,155 feet long, and is completed for 2,600 feet from the southern end, and 2,550 feet from the northern end, leaving 1,005 feet still to be done. Much trouble has been experienced there through leak of gas of inflammable gas through cracks in the sandstone. Tunnel No. 4 is 5,990 feet long, and is very nearly finished. Tunnel No. 5, 900 feet; No. 6, 960 feet; No. 7, 450 feet, and No. 8, 380 feet long, are all completed and ready for the track. Tunnel No. 9 is 1,000 feet long; it is on the old Santa Cruz & Felton road, now owned by this company, and has been in use for some time. These tunnels are all through gravel or soft rock, and all require timbering for their whole length. The timber used is all redwood, selected with much care.

Toledo, Peoria & Warsaw.—The Receiver having been authorized by the Court to pay over the necessary

amount, the Purchasing Committee will pay Oct. 18, through the Farmers' Loan & Trust Company, of New York, an amount equal to the quarterly interest due July 1, 1879, on the bonds provided for in the agreement of reorganization. This amount is equal to \$21.92 on each old \$1,000 Eastern Division bond; \$21.68 on each Western Division bond, and \$13.14 on each Burlington Division bond.

The Master in the foreclosure suit has filed his report with the United States Circuit Court. He reports \$1,600,000 bonds issued under the Eastern Division first mortgage, the total amount due on which is \$2,021,536. Under the Western Division first mortgage \$1,800,000 bonds were issued and the sum now due is \$2,252,079. Under the Western Division second mortgage \$1,201,000 bonds are outstanding, the sum of \$1,788,649 being due. Under the consolidated mortgage \$1,599,000 bonds were issued, the sum now due being \$2,444,818. The Master finds a prior lien on the road from the Chicago & Alton crossing to the Indiana line in the shape of a mortgage given in 1857 by the old Peoria & Quawaka Company, under which \$416,000 bonds were issued. The Illinois Central has a right to use this part of the road on payment of a rental proportioned to the traffic, the contract being in force until these bonds are paid. The Master recommends that the property be sold as a whole, and not in parcels, notwithstanding that some of the mortgages cover only portions of the property.

Toronto, Grey & Bruce.—In order to raise the money needed to change this road from 3 ft. 6 in. to standard gauge, and to put it in good condition, the sum of \$800,000 is needed. Of this the bondholders are asked to contribute \$200,000; municipalities on the line \$200,000, and the Ontario government is to be asked to give the remaining \$400,000. It is doubtful whether the municipalities will be willing to contribute the amount asked. The road is said to be in such condition that it will be hardly possible to work it next winter, unless something is done.

Valley of Ohio.—Track-laying is now in progress northward toward Cleveland, O. The station buildings in that city are nearly finished, and the company hopes to be able to open the road for traffic next month.

Wabash.—At the special meeting in Toledo, Oct. 14, agreement of consolidation with the St. Louis, Kansas City & Northern was ratified and confirmed, 137,951 shares being voted in its favor and none against; 23,049 shares not voting.

In the suit of the Western Union Telegraph Company against this company, the United States Circuit Court has decided that the clause of the contract between the two companies which provides that all competing lines of telegraph shall be excluded from the railroad company's right of way, is contrary to public policy and the laws of the United States, and therefore void.

Wabash, Kansas City & Pacific.—As noted elsewhere the consolidation by which this company is formed has been approved by formal vote of the stockholders of the St. Louis, Kansas City & Northern and the Wabash Companies. The consolidated company will not be fully organized until Nov. 7, when a meeting will be held in Toledo, at which directors will be chosen and questions as to the management, general offices, etc., settled.

The new company owns 650 miles of road east of the Mississippi, leases 95 miles more and leases running rights over 28 miles more. West of the Mississippi it owns 380 miles and leases 365 more, in most of which it owns a controlling interest. This makes a total of 1,518 miles worked, of which 1,030 miles are owned and 488 leased, nearly all the leased mileage being practically owned. It will have \$20,000,000 preferred and \$20,000,000 common stock, and about \$36,000,000 bonded debt.

Warwick Valley.—The work on the extension of this road from Warwick, N. Y., to McAfee Valley, N. J., is progressing well.

Train service has heretofore been furnished under contract by the New York, Lake Erie & Western Company. This company is now making arrangements to run its own road, and has ordered two locomotives and a number of cars for that purpose. As soon as the new equipment is received the gauge of the road is to be changed from 6 ft. to 4 ft. 8½ in., which will probably be done about the end of the year.

Washington City, Virginia Midland & Great Southern.—The foreclosure suit came up before the Circuit Court at Alexandria, Va., Sept. 26. There was a general concurrence of opinion that no decree for the sale of the entire road could be made without the consent of all the lien-holders. The case was finally referred to a master, who is to report at the December term.

Wheeling & Lake Erie.—A contract is said to have been let to C. R. Griggs, of New York, to complete this projected road from Huron, O., on Lake Erie to Martin's Ferry on the Ohio near Wheeling. The work is to be completed by the summer of 1881, the contract including all buildings necessary and the full equipment. The price is said to be \$34,000 per mile, chiefly in securities of the company.

The road was projected seven or eight years ago, and at different times several contracts for its construction have been made, under which a good deal of grading has been done and track (narrow gauge) laid from Norwalk to Huron, 12½ miles. The whole length of the road when completed, including an extension to Toledo, will be 198 miles. The company has always been embarrassed by difficulties in raising money and quarrels in the management and with the contractors.

ANNUAL REPORTS.

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Pittsburgh, Wheeling & Kentucky.

This company's road extends from Wheeling Junction to Wheeling, W. Va., 24 miles; it is leased to the Pittsburgh, Cincinnati & St. Louis Company, but the company makes a report for the year 1878, during which the road was worked ten months and four days, having been opened for traffic Feb. 25, 1878.

The equipment is furnished by the lessee, the company owning none.

The general account is as follows:	
Stock (\$10.00 per mile).....	\$399,600.00
Bonds (\$8.333 per mile).....	200,000.00
Due lessor for advances.....	16,476.04
Interest, May 1 and Nov. 1, 1878.....	14,000.00
Accounts and balances.....	2,143.70

Total.....	\$632,219.83
Cost of road (\$24.933 per mile).....	\$599,393.23
Cash and accounts.....	24,445.82
Income account, balance.....	8,380.78

The accounts due include \$13,295.43 due on stock subscriptions and \$5,619.22 net earnings held by lessee. The stock includes \$1,050 scrip and \$15,250 not yet fully paid up.

The traffic for the year was as follows:	
Train mileage, passenger.....	27,053
" freight.....	17,422
" other.....	13,413

Total.....	57,888
Mileage of passenger-train cars.....	95,740
freight cars.....	192,009
Passengers carried.....	47,991
Passenger mileage.....	826,796
Tons freight carried.....	45,653
Tonnage mileage.....	1,016,452
Average passenger-train load, number.....	30.36
Average freight-train load, tons.....	58.34

The average freight train was 23.46 cars; 26.04 per cent. of the freight car mileage was of empty cars. The gross earnings per train mile were 110.88 cents; net, 23.17 cents. The average earnings per passenger per mile were 2.79 cents gross, and 0.13 cent net; per ton per mile, 2.44 cents gross, and 0.76 cent net.

The earnings for the year were as follows:	
Passengers.....	\$23,082.30
Freight.....	24,816.71
Mails, etc.....	1,416.04

Total (\$2,054.79 per mile).....	\$49,315.05
Expenses (79.11 per cent.).....	39,010.95

Net earnings (\$429.34 per mile).....	\$10,304.10
Hire of equipment.....	\$4,684.88
Interest on bonds.....	14,000.00

Total.....	18,684.88
Income account, debit balance.....	\$8,380.78

The lessee paid out \$5,811 for betterments during the year. Under present arrangements the net earnings are applied to repayment of advances made by the lessee.

The road has done well so far, and has been operated successfully and without accident. Arrangements have been made to extend it from Wheeling to Benwood, but the work has been delayed by litigation over a crossing required in Wheeling.

Northern Pacific.

This company, at the close of the last fiscal year, June 30, 1879, owned the line from Thomson Junction, Minn., to Bismarck, Dak., 424 miles; one-half interest in the line from Thomson Junction to Duluth, 24 miles, and a line from Kalama, Wash. Ter., by New Tacoma to Wilkeson, 136 miles. It leases (and owns a controlling interest in) the Western Railroad of Minnesota, from Brainerd to Sauk Rapids, 60.5 miles, and also the right to use the St. Paul, Minneapolis & Manitoba track from Sauk Rapids to St. Paul, making 720 miles over which its trains run.

At the close of the year it owned 55 locomotives; 23 passenger and 11 baggage, mail and express cars; 523 box, 41 stock, 639 flat and 100 coal cars.

The present report covers only ten months, the fiscal year having been changed to end with June instead of August. The published report contains only the President's report, and gives no general balance sheet, no statements of traffic, and only a very partial and incomplete statement of earnings. There is hardly any information as to what the road has done, but a good many statements as to what the company intends to do.

The information given as to capital account is as follows:

"The capital stock of the company is fixed by the plan of reorganization as by the charter at \$100,000,000, divided into one million shares of \$100 each.

"Under the plan of reorganization, it is subdivided into

preferred stock, 510,000 shares (\$51,000,000), and common stock, 490,000 shares (\$49,000,000).

"The preferred stock is receivable at par for the company's lands east of the Missouri River, in the state of Minnesota and in the territory of Dakota. Such conversion is an extinguishment of the stock.

"There have been so received and extinguished to date, a little over 72,000 shares, leaving of preferred stock now issued and to be issued, nearly 438,000 shares. Of this the company owns, as part of its assets, about 80,000 shares, whereof 20,000 shares have been appropriated for the construction of the Missouri Division, and 14,000 shares for the construction of the Pend d'Oreille Division, leaving about 46,000 shares of the preferred stock in the treasury as an asset to be used for the best interest and advantage of the company.

"Of the 490,000 shares of the common stock, there were entitled to be issued 299,526 shares, and which are nearly all issued. The remaining 190,474 shares of the common stock are to be issued according to the plan of reorganization, to the numerous owners of the old proprietary interests, as the road progresses.

"The preferred stock is entitled to dividends, non-accumulative, not exceeding 8 per cent. per annum, as the net earnings of each year may suffice to pay, and before any dividends shall be paid on the common stock. When and during the time the net earnings shall be sufficient to pay 8 per cent. dividends on both the preferred and common stock issued, the surplus is to be divided on both alike, according to the number of shares issued of each. * * *

"On the 18th of December, 1878, the Purchasing Committee, anxious to close their trust, and to whose discretion the time was left, published in one or more newspapers in every state in which holders of Northern Pacific bonds were known to reside, a notice that the right to convert the bonds under the plan of reorganization, would expire on the 30th of June, 1879. Under the stimulus of this notice, the conversion amounted in all, on the 17th day of September, instant, to \$30,207,100, and there are outstanding to-day of those bonds only \$529,400. It is probable that most of these will come in."

The net floating debt June 30 was \$385,302.46, of which \$194,722.37 is the actual floating debt, the balance of \$190,580.09 being notes for rails for the new extensions, and since provided for from bonds issued. The actual floating debt includes all the old outstanding claims.

Concerning the Land Department, the report says:

"By construction of road the company has acquired the absolute unconditional title to 10,579,200 acres, of which 7,891,200 acres are in Minnesota and Dakota, and 2,688,000 acres are in Oregon and the territory of Washington. By a provision of the mortgage made by the former organization, dated July 1, 1870, the bonds secured thereby were receivable at par in payment for any of those lands; and by the plan of reorganization, adopted June 30, 1875, pending the foreclosure proceedings, the preferred stock has been and is receivable at par in payment for the lands east of the Missouri River. Previous to the reorganization, which was perfected Sept. 29, 1875, the company sold 686,000 acres, and since that period, to the first day of July last, there have been sold on the Pacific Coast 15,260 acres, of which 4,661 acres were sold during the last fractional year, at an average price of \$3.12 per acre; and in Minnesota and Dakota, 1,610,869 acres, of which 386,142 acres were sold during the last fractional year, at an average price of \$4.45 per acre. Until the last of the year 1878, the sales of land east of the Missouri river continued active; but latterly there has been a marked falling off, for the want of government surveys, and in consequence of the surveyed lands nearest to the line of the constructed road having been, to a large extent, already taken, and the enhanced market value of the preferred stock makes the holders less anxious to exchange it for lands; and also, the government alternate sections are, by the settlement of the country, brought into constantly increasing demand. During the year ending June 30 last, there were taken of government lands in Minnesota and Dakota, within the limits of the grant to this company, by actual settlers, under the provisions of the pre-emption, homestead, and tree-culture acts, over 1,250,000 acres. * * *

"The lands belonging to the Missouri and Pend d'Oreille divisions of the road have been explored, and are found to be valuable, the former embracing a large extent of first-class agricultural lands, and nearly all the remainder, including what have heretofore been called 'The Bad Lands,' being remarkably well adapted for grazing purposes; and the latter, being in the great plains of the Columbia River, are, for the greater part, to be ranked among the best wheat-producing lands of the world. * * *

"The bonds to be issued for the construction of the Missouri Division will be received at par and accrued interest for the land belonging to that division, and the bonds to be issued for the construction of the Pend d'Oreille Division will be likewise received at par and accrued interest in payment for the lands belonging to that division."

The only statement of earnings given for the ten months is as follows:

	1878-79.	1877-78.	Increase.	P. c.
Gross earnings.....	\$1,167,261.82	\$947,238.29	\$220,023.53	23.2
Working expenses.....	711,463.81
General expenses.....	107,492.81

Total.....	\$348,305.20
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The gross earnings were \$1,137, and the net earnings \$484 per mile worked; the expenses were 70.16 per cent. of the gross earnings. The report says:

"The operating expenses have been very large, by reason of the great outlay necessary on replacement and repair of track, bridges, trestles, depot buildings and equipment; all of which has been charged to that account. * * * It is nearly six years since the work of construction was suspended. The ties then in the road-bed were principally pine and tamarack, and the bridges and culverts were all pine. This material has about reached the limit of its duration, and renewals have of necessity been extensive. For instance, 80,000 new cross-ties were placed in the Dakota Division last year, and 200,000 have been procured this year. It is estimated that 100,000 more will be required next year, and an equal quantity the year following. About 55,000 oak ties were placed in the Minnesota Division the present year prior to July 1. In the two divisions 35 trestle bridges—624 feet—were, within the same time, substantially rebuilt with oak.

"Fully 1,200 feet in length of pile bridges have been rebuilt in the Duluth Harbor, and the docks there have been extensively repaired.

"In the Pacific Division the renewals of bridges required a large expenditure. The water supply for engines was found insufficient to meet the wants of the increased trains, and frost-proof wells and tanks are being constructed at suitable points."

During the year 4 engines were bought, and 4 more engines and 100 box cars since its close. A large addition to the equipment will be needed for the new lines.

To relay the line between Brainerd and Fargo the company bought 6,000 tons of steel rails delivered at Cleveland for \$44, and 5,000 at Erie for \$45 per ton.

The gross earnings for the month of July were \$192,324.65; net, \$71,398.64. For August the gross earnings were \$210,927.02; net, \$97,265.54, making net for the two months \$168,564.18.

The report says: "Under the contract perfected with the St. Paul, Minneapolis & Manitoba Railway Company, this company began to run its trains over the road of that company, between Sauk Rapids, Minneapolis and St. Paul, on the 21st of April, 1879. The expenses of operating and maintaining this road, including rental, payable by this company, are made equal to the gross receipts therefrom, for the reason that the net earnings are devoted, as fast as they accrue, to the payment of the share to be borne by this company of the expense incurred in laying the entire track with steel rails, which is now being done. In a few months, when the cost of relaying shall have been paid in the manner specified, the net earnings of this company from that road will show a satisfactory balance over and above all expenses of operating and maintaining the road, the rental and other outlay."

"The trains of the company have been run during the past year without any interruption, save slight detention from snow, west of James own, Dak., a few days in February last, and no serious injury has occurred to passenger or employee."

Concerning new extensions the report speaks as follows: "The judgment of the directors being fully in accord with the recommendations of stockholders, vigorous measures were taken in the fall of 1878, to prepare for letting the work on the Missouri Division, from the Missouri River to the Yellowstone River, over 200 miles. Proposals were advertised for in November. About 40 contractors submitted their bids. The lowest bidders (Walker, Bellows & Co.) were awarded the contract for the construction of 100 miles of road from Bismarck westward, and they commenced work in January. Such progress has been made as to reasonably assure the running of trains over this hundred miles of extension before the close of the present season.

"The remaining 110 to 120 miles of this division, extending to the Yellowstone River, is now being definitely located by the Engineers in the field. A portion of it will be in readiness for contract in October, and an effort will be made to reach the Little Missouri, about 140 miles from the Missouri River, during this season. It is intended to have the entire division completed and in operation to the Yellowstone in the summer or early autumn of 1880.

"The Yellowstone is the next division, about 340 miles in length, chiefly in the Yellowstone Valley; and it is proposed to proceed with the surveys and final location there, so as to put a portion of it under construction early next season, in advance of the completion of the Missouri Division.

"The next, following the Yellowstone, is called the Rocky Mountain Division, about 200 miles; then Clark's Fork Division, about 280 miles; and the next is Pend d'Oreille Division, about 210 miles. This last extends from Lake Pend d'Oreille to the navigable waters of the Columbia. The construction of the Pend d'Oreille Division is about to be commenced.

"To insure the location of this division of the road upon the most advantageous line, several parties of engineers were placed in the field this year early in the season, under the personal supervision of the company's Consulting Engineer. Old lines have been reviewed, and new ones surveyed, over a wide range of country, so as to give very full and exact information upon the topography and resources of the entire region within the limits of selection, and a location has been adopted which is believed to be the best that can be attained. It presents but little difficult work, and is, as a whole, an easy line to build.

"The work of grading from the Columbia River eastward toward Lake Pend d'Oreille will be commenced immediately. Proposals for timber and ties have been advertised for, and contracts will be made for their delivery next spring. Shipments of 2,500 tons of rails for this division were made in April and May last, and are now due in the Columbia River. Other shipments will be made in time for the laying of the rails in the track next summer.

"Twelve thousand tons of steel rails, with the fastenings, have been contracted for, deliverable at tide-water, in the months of December, January and February. The prices were favorable to the company—5,000 tons delivered at ship's tackles in Philadelphia, for \$45, and 7,000 tons at Hoboken for \$45.25 per ton.

"To provide funds for the construction of the Missouri Division, bonds at the rate of \$12,000 per mile, \$2,500,000 in all, are to be issued by the company, secured by a first mortgage on the road and lands of that division—the earnings of the completed road being pledged, under the plan of reorganization, to pay the interest on and provide a sinking fund for such bonds. Two million dollars' worth of these bonds, with a like amount of preferred stock, were offered *pro rata* to the stockholders for \$2,000,000, and were taken.

"For the construction of the Pend d'Oreille Division, bonds are to be issued not to exceed \$20,000 per mile, secured in the same way, by a first mortgage on the road and lands of that Division. Two millions of these bonds and \$1,400,000 of preferred stock were offered *pro rata* to the stockholders for \$2,000,000, and were taken. The remaining bonds of this division, as well as the remaining \$500,000 of the Missouri Division, if needed, should be disposed of, on more advantageous terms. The faith shown by the stockholders, and the improved condition and credit of the company, justify this expectation.

"With the Missouri and Pend d'Oreille Divisions completed, there will be a gap between them of something over 800 miles. While this is being filled, it is expected a mail route will be established, and stages run between the approaching rails.

"The lands to be earned by the construction will amount to over five millions of acres for the Missouri Division, and over five millions for the Pend d'Oreille Division.

"From the mouth of Snake River, down the Columbia, on the main line to Kalama (whence the company's road is completed to Tacoma, 105 miles, connecting the Columbia with Puget Sound), is about 250 miles. The length of the branch line, from a point on the Pend d'Oreille Division, over the Cascade range, to be built to reach Tacoma, is about the same. It is proposed, as early as practicable, to make further surveys of the branch line over the Cascade range, so that accurate estimates of the cost of building over the mountains, as well as down the river, can be made."

To reach new settlements in Red River country, a branch has been laid out from Casselton, Dak., north 30 miles, and work begun. It is to be laid with old iron taken out of the main line, and its estimated cost is not over \$5,000 a mile.

The contract with the St. Paul, Minneapolis & Manitoba for the use of the 75.5 miles between Sauk Rapids & St. Paul has been finally concluded, the annual rental to be \$40,000, including terminal grounds in St. Paul.

The directors have decided that the company shall do its own express business and own its sleeping cars; also that no fast or special freight line shall be allowed over the road. The board is now considering the question of building elevators.

Congress again failed at its last session to pass the bill extending the time for completion of the road. It is not thought that any difficulty will arise, however, and a bill can probably be passed next year.